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Each volume of the *Journal* published since 1899 contains the papers presented to the Institute between January and December of the calendar year; the minutes of the Annual Meeting in January, with the President's Address, and the Reports of the Treasurer and Council forming the introduction to each volume. The present volume, therefore, contains those papers which were presented between January and December, 1901; and opens with the President's Address delivered in January, 1901.

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NOTE.—The *Anthropological Notes and Miscellanea* which formerly concluded the annual volumes of the *Journal*, are replaced until further notice by the contents of the Institute's monthly periodical "*Man*" (see *Journ. Anthropol. Inst. XXX, Miscellanea*, No. 1) which will be found, with its own title page and table of contents, at the end of the current volume (pp. viii. 192 with Plates A to M.)

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*Stuttgart...* Zeitschrift für Morphologie und Anthropologie.

GREECE.

*Athens...* Ephemeris Archaiologikè.  
— Annual of the British School of Archaeology.

ITALY.

*Florence...* Società Italiana di Antropologia, Etnologia, e Psicologia Comparata.

*Rome...* Bullettino di Paletnologia Italiana.

— Società Romana di Antropologia.

*Rome...* Accademia dei Lincei.

*Turin...* Archivio di Psichiatria.

NETHERLANDS.

*Amsterdam...* Koninklijke Akademie van Wetenschappen.

*Leiden...* Internationales Archiv für Ethnographie.

*The Hague...* Koninklijk Instituut voor de Taal-, Land-, en Volkenkunde van Nederlandsch Indië.

PORTUGAL.

*Lisbon...* Portugal em África.

*Porto...* Portugalia.

RUSSIA.

*Moscow...* Imper. Obschestvo Lubitelei Iestestvoznania, Antropologii, i Etnografii.

*St. Petersburg...* Imper. Akademia Nauk.

SWEDEN.

*Stockholm...* Academy of Antiquities, National Museum.

— Nordiska Museet.

— Ymer.

AFRICA.

*Cape Town...* S. African Philosophical Society.

AMERICA.

BRAZIL.

*Rio de Janeiro...* Museu Nacional.

CANADA.

*Montreal...* Royal Society of Canada.

*Toronto...* Canadian Institute.

UNITED STATES.

*Cambridge, Mass....* Peabody Museum, Science.

*Chicago...* American Antiquarian.

— Field Columbian Museum.

*New York...* American Museum of Natural History.

*Philadelphia...* Free Museum of Science and Art (University of Philadelphia, Department of Archaeology).

*Washington...* American Anthropologist.

— Bureau of Ethnology.

— Smithsonian Institution.

— United States Geological Survey.

— United States National Museum.

*Worcester, Mass....* American Journal of Psychology.

ASIA.

CHINA.

*Shanghai...* Royal Asiatic Society (China branch).

INDIA.

*Bombay...* Anthropological Society.  
— Indian Antiquary.

*Calcutta...* Bengal Asiatic Society.

*Colombo...* Royal Asiatic Society (Ceylon branch).

JAPAN.

*Tokio...* Asiatic Society of Japan.

— Tokio-Daigaku (Imperial University).

JAVA.

*Batavia...* Bataviaasche Genootschap van Kunsten en Wetenschappen.

STRAITS SETTLEMENTS.

*Singapore...* Royal Asiatic Society (Straits Branch).

## AUSTRALIA AND PACIFIC.

<i>Honolulu...</i> Bernice Pauahi Bishop Museum.	<i>Sydney...</i> Australasian Association for the Advancement of Science.
<i>Melbourne...</i> Royal Society of Victoria.	— Royal Society of New South Wales.
<i>Sydney...</i> Australian Museum	<i>Wellington, N.Z...</i> Polynesian Society.

## PUBLICATIONS RECEIVED IN EXCHANGE FOR "MAN."

## ENGLAND.

*London...* Church Missionary Intelligencer.  
— Journal of the East India Association.  
— Lancet.  
— South American Missionary Society.

## AUSTRIA.

*Prag...* Česky Lid.

## BELGIUM.

*Brussels...* Mission Belge.  
*Ghent...* Volkskunde.

## FRANCE.

*Dax...* Société de Borda.  
*Paris...* Revue des Traditions Populaires.  
— Melusine.

## GERMANY.

*Brunswick...* Globus.  
*Danzig...* West Preussisches Provincial-Museum.  
*Dresden...* Bericht des Vereins für Erdkunde.  
*Guben...* Niederlausitzer Mittheilungen.  
*Munich...* Korrespondenzblatt.  
— Geographische Gesellschaft.

*Nürnberg...* Bericht der Natur-historischen Gesellschaft.

## NEW SOUTH WALES.

*Sydney...* Science of Man.

## PORTUGAL.

*Lisbon...* Archeologo Português.  
*Serpa...* A Tradição.

## SERVIA.

*Alexinatz...* Karadjitch.

## SWITZERLAND.

*Zürich...* Schweizerisches Archiv für Volkskunde.

## UNITED STATES.

*Boston...* American Journal of Archæology.  
*Chicago...* Open Court.  
*Meriden...* Biblia.  
*New York...* Appleton's Popular Science Monthly.  
*Philadelphia...* Proceedings of American Philosophical Society.

LONDON:

HARRISON AND SONS, PRINTERS IN ORDINARY TO HIS MAJESTY,  
ST. MARTIN'S LANE.

JOURNAL  
OF THE  
ANTHROPOLOGICAL INSTITUTE  
OF GREAT BRITAIN AND IRELAND.

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ANNUAL GENERAL MEETING.

FEBRUARY 4TH, 1901.

C. H. READ, Esq., F.S.A., *President, in the Chair.*

The Minutes of the last Annual General Meeting were read and confirmed.

The Election of the following new Fellows was announced :

Mr. J. BRUCE, M.B., Town Hall Square, Grimsby.

Mr. A. H. GARDINER, Queen's College, Oxford.

The PRESIDENT declared the ballot open, and appointed, as Scrutineers, Mr. J. Gray and Mr. T. V. Hodgson.

The TREASURER presented his Report for the year 1900 ; the adoption was moved by Mr. GOWLAND, seconded by Prof. HOWES.

The SECRETARY read the Report of the Council for 1900 ; the adoption was moved by Mr. BRABROOK, and seconded by Mr. WALHOUSE. After some remarks by Dr. GARSON, the Reports were accepted *nem. con.*

The PRESIDENT delivered his Annual Address.

The SCRUTINEERS gave in their Report, and the following were declared to be duly elected, to serve as Officers and Council for the year 1901 :—

*President.*—Prof. A. C. Haddon, M.A., Sc.D., F.R.S.

*Vice-Presidents.*

A. J. Evans, Esq., M.A., F.S.A. | Wm. Gowland, Esq., F.S.A.  
Prof. G. B. Howes, LL.D., F.R.S.

*Hon. Secretary.*—J. L. Myres, Esq., M.A., F.S.A., F.R.G.S.

*Hon. Treasurer.*—A. L. Lewis, Esq., F.C.A.

*Council.*

G. M. Atkinson, Esq.	T. V. Holmes, Esq., F.G.S.
H. Balfour, Esq., M.A.	E. F. im Thurn, Esq., C.B., C.M.G.
Wm. Crooke, Esq., B.A.	A. Keith, Esq., M.D.
Prof. D. J. Cunningham, M.D., F.R.S.	R. Biddulph Martin, Esq., M.P.
W. L. H. Duckworth, Esq., M.A.	Sir C. E. Peek, Bart., M.A., F.S.A.
R. W. Felkin, Esq., M.D., F.R.G.S.	R. H. Pye, Esq.
H. O. Forbes, Esq., LLD.	E. G. Ravenstein, Esq., F.R.G.S.
J. G. Garson, Esq., M.A.	Prof. W. Ridgeway, M.A.
E. Sidney Hartland, Esq., F.S.A.	W. H. R. Rivers, Esq., M.D.
Col. Sir T. H. Holdich, K.C.I.E., C.B.	F. C. Shrubsall, Esq., M.A.

*Assistant Secretary.—N. W. Thomas, Esq., M.A.*

Prof. A. C. HADDON, having taken the Chair, proposed that a cordial vote of thanks be given to Mr. C. H. READ, the outgoing President, and that he be requested to allow his address to be printed in the *Journal* of this Institute. The motion was seconded by the Treasurer, and carried unanimously.

Votes of thanks to outgoing Council, and to the Treasurer, Secretary, and Assistant Secretary were also passed.

#### REPORT OF THE COUNCIL FOR THE YEAR BEGINNING 30TH JANUARY, 1900.

The Council is able to report very satisfactory progress during the year under review, which is shown not only in an increased number of fellows elected, and of meetings held, but in wider activity and usefulness in many directions.

The number of fellows continues to show steady increase; for the loss of two honorary fellows by death, and of ten ordinary fellows by death or resignation, has been more than balanced by the election of twenty ordinary fellows, and nine local correspondents under the By-law to which further reference will be made later on (p. 4). There has thus been a net increase of seventeen; leading to a total membership to-day of 356.

Among the losses which the Council has with regret to announce are Miss Mary Kingsley, Lord Armstrong, Sir William Hunter, Lieutenant-General Pitt-Rivers, and Professor Max Müller.

During the year under report, eleven ordinary meetings were held, and two special meetings in June and November for the reception of communications which could not be presented on the ordinary days of meeting; while the Huxley Memorial Lecture, of which more is said below, took the place of the first ordinary meeting of the autumn session. In addition to these, an extraordinary meeting was held in Oxford on July 3rd, to enable the members to study the archaeological and ethnographical collections of the Ashmolean and Pitt-Rivers Museums.

In the month of June the rooms of the Institute were utilised for an exhibition of specimens of Kabyle and Chawia pottery, jewellery and other industrial arts, collected by our fellows Mr. D. Randall-MacIver and Mr. Anthony Wilkin. The exhibition was visited by a number of fellows and others, and set a precedent which it is hoped may be followed in future years.

The proposal to found a Huxley Memorial Lecture, which has long occupied the attention of the Council, has at last been realised, and the first lecture was delivered on the 13th of November, by the first President of the Institute, the Right Honourable Lord Avebury, D.C.L., LL.D., F.R.S., who took for his subject "Huxley, the Man and his Work." The lecture was delivered in the theatre of the Museum of Practical Geology, the scene of many of Huxley's best-remembered discourses, and attracted a large and distinguished audience. The thanks of the Institute are due to the Director of the Geological Survey, Sir Archibald Geikie, LL.D., D.Sc., F.R.S., for his courteous grant of so appropriate a place of meeting. A Huxley Memorial Medal was struck in silver to commemorate the occasion, and was presented to Lord Avebury at the close of his address.

One double-number of the *Journal* has been issued during the year, completing Volume II of the new series, and Volume XXIX of the old numbering, which it has been found more convenient to revive.

To facilitate reference to the *Journal*, and to make it a more convenient record of the work of the Institute, the Council has authorised the following modifications in its form and mode of appearance.

1. From Volume XXX (= N.S. III) onwards, the annual volume contains the papers presented to the Institute between January and December of the calendar year. The first half of the volume thus contains the report of the Annual Meeting and the President's Address, together with the other proceedings of the Institute from January to June, and will be published as soon as possible after the end of the summer session: the second half contains the proceedings of the autumn session, and will be published as soon as possible after the end of the calendar year.

2. The arrangement of the cover is changed so as to bring the table of contents on to the front page, and make room on the third and back page for notices and other matter; and the cover itself is printed on paper of more durable texture than hitherto, and of a shade of green which is found less liable to fade.

3. The *Miscellanea* of Volume XXX are printed with separate pagination, so as to permit the whole of the *Miscellanea* of the annual volume to be bound up together at the end, and so to leave only one place where short articles are to be sought, instead of two, as heretofore. At the same time, to minimise the risk of confusion between two paginations, each item of *Miscellanea* is provided with a reference number in the margin, by which it should be quoted, instead of by the page number. For further convenience of reference each item is also provided with catch-titles of the subject, and of the author's name.

4. The separate pagination of the *Miscellanea*, above described, makes it

possible for the future to issue short copies of each sixteen page sheet of this part of the *Journal* in advance, to every one who may desire to have early information of its contents ; and after careful deliberation, the Council has decided to extend the scope of the *Miscellanea* still further on the same lines, by issuing such advance copies in a separate cover to fellows and others monthly. The Institute thus comes into possession of a valuable instrument for the furtherance of its work, in the shape of a monthly magazine, the publication of which, under the title "*Man; a Monthly Record of Anthropological Science,*" was begun in January, 1901. *Man* consists of sixteen pages of text monthly, together with a full-page plate ; and is sold to fellows at an annual subscription of 6s., and to the public at 10s., or 1s. for the single number. Every fellow, however, whether a subscriber to the monthly issue or not, will receive in the place of the *Miscellanea* of the half-yearly volume of the *Journal* a complete copy of *Man* for the preceding six months.

So far as it is possible to judge at present, the prospects of this new departure are most favourable ; the January number has been well received by the public press, and has achieved a steady sale.

5. After mature consideration also the Council has resolved to terminate the long standing agreement with its publishers, Messrs. Kegan Paul, Trench, Trübner and Co., and to take the publication of the *Journal* into its own hands. While taking this step, of which the importance is sufficiently obvious, the Council desires to place on record its sense of the continual courtesy of Messrs. Kegan Paul and Co., during the long period of their association with the Institute and with the previous Societies.

In the general administration of the affairs of the Institute, two or three points seem worthy of separate mention. The long delayed revision of the *By-laws* was brought to a satisfactory termination early in the year, and a printed copy of them was issued to every fellow enclosed in the latter part of Volume XXIX of the *Journal*. The Council desires to call the attention of the fellows to the provision for an *Executive Committee*, which has relieved the Council of much routine work, and enabled it to devote its limited time to weightier matters ; to the revised *Library Regulations*, which are working well ; and to the establishment of a new class of *Local Correspondents*, which is already securing the closer co-operation of working anthropologists in the remoter parts of the world.

The simplification of the routine-work above mentioned, and the rearrangement of the duties of the Institute's staff, have enabled the Council to dispense with the services of a Collector. The fellows have therefore been requested to pay their subscriptions for 1901 either direct to the Institute or to the Institute's account with Messrs. Robarts, Lubbock, and Co., and to adopt as far as possible the common and convenient practice of making their payments by a standing banker's order.

It is also mainly in consequence of the readjustment of the office work, and of the greatly increased activity of the Institute in every department, that the Council has to announce the resignation by Mr. Webster of the post of Assistant

Secretary which he has held for the past five years. Mr. Webster has served the Institute with unfailing goodwill and courtesy during a difficult period of its history, and the Council desires to put on record its sense of his constant devotion to its welfare. The vacant post has been filled by the appointment of Mr. N. W. Thomas, M.A. (Trinity College, Cambridge), who is already known to students of comparative religion by his investigation of animal superstitions, and to whose energy and resource the Institute is already greatly indebted for a further increase of activity, and for the marked progress that has been made in the revision and reorganisation of the library.

At the invitation of the Royal Society the Council has resolved to become responsible for the compilation of the British part of the section of Anthropology in the new International Catalogue of Scientific Literature. The Institute is represented on the British Regional Bureau by its President and by Professor Tylor; and has secured the adoption of important amendments of the original schedule. As, however, the schedule of Physical Anthropology even as finally adopted does not by any means cover the whole of the field of the Institute's activity, it has been resolved to supplement the titles required for the International Catalogue by a further list of anthropological literature which will be maintained in the office of the Institute and published as occasion serves.

Turning from general administration to the management of the library, the Council has to record substantial progress in several directions. The periodicals received in exchange have risen in number from 93 to 109 (34 British, 15 Colonial, 60 Foreign), and the number of books and pamphlets presented, from 76 to 180. With the very small sum (£10) which was available for the purpose, the current binding has been completed and some arrears made up; and something has been done to complete imperfect sets of periodicals by the purchase of missing numbers. The unbound pamphlets have been catalogued and put away in stout cardboard cases; and a large part of the library was rearranged in the course of the vacation so as to make the most of the available space. The great increase of acquisitions, however, and the prospect of even greater increase in the immediate future—more than half of the acquisitions having been made in the last quarter of the year—make the question of additional space more pressing even than it appeared when last year's Report was written; and the Council has already thought it well to empower the officers to make the necessary enquiries and to report during the current session.

The collection of photographs still grows steadily, and an important step has been taken by the formation of a loan-collection of lantern slides for the use of lecturers. In this matter, the Institute has had the good fortune to secure the co-operation of the Folklore Society; the loan collection of slides being placed under the management of a joint committee of the two institutions, and incorporating the small collections which were already in the possession of each. A full account of the working of the loan-collection will be found in the *Journal*, Volume XXX (*Miscellanea*, No. 11).

In another department also the Council is glad to record co-operation between the Anthropological Institute and the Folklore Society. Early in June, 1900, the then President of the Folklore Society brought to the notice of the Council of the Institute the urgent question of determining by special enquiry the status, laws, and social customs of the native races of the Transvaal and the Orange River Colony. After full discussion a detailed memorial was drawn up and submitted jointly by the Anthropological Institute and the Folklore Society to the Secretary of State for the Colonies, and from the terms of the reply it may be inferred that the necessary investigations will be undertaken, so soon as the condition of the new Colonies may permit.

Turning finally from the present to the future the Council recommends to the fellows the adoption of a definite policy in regard to some of the most important sections of the Institute's work. The rapid growth of the library is a source of continual anxiety; at the same time the usefulness of a library depends more than anything upon the extent to which it can be kept up to date by systematic accessions. The rapidly changing conditions of higher education may make it necessary before long to act promptly and vigorously if the "proper study of Mankind" is to secure due recognition in revised *curricula*, and in new educational centres. And the continuous and rapid destruction of non-European civilisations, and of the evidence for earlier stages of culture calls more imperiously than ever for organised and effectual effort for their preservation, or at least for observation of them before their inevitable disappearance. To all these points the Council has given its careful attention, as opportunity has served; and appeals confidently to the fellows for their cordial support in carrying out the great objects of the Institute on the lines laid down in this Report.

#### TREASURER'S REPORT FOR THE YEAR 1900.

The income of the Institute for the year 1900 was £534 10s. 11d., being £10 2s. 10d. more than the income for 1899. The subscriptions received during the year show an increase of £75 10s. 0d., consisting mainly of two life subscriptions amounting to £42, against none in 1899; and of arrears £37 16s., as against £6 8s. in 1899. In consequence of our having published only one double number of the *Journal* in 1900, instead of two as usual, the sales of publications have produced only £63 19s. 5d. as against £127 11s. 7d. in 1899, and £92 4s. 2d. in 1898.

The expenditure during the year 1900 was £588 7s. against £590 3s. 11d. in 1899, and has exceeded the income by £53 16s. 1d., and in consequence of this and previous deficits in our revenue account, £100 of our invested stock has been sold, the produce of which, £108 10s., has been placed to our credit with our Bankers. The expenditure on the *Journal* has been £43 less in 1900 than in 1899, but miscellaneous printing and stationery, and also stamps and parcels, have increased, as a result of increased activity in the Secretary's department. More

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

*Receipts and Payments for the Year 1900.*

RECEIPTS.	£ s. d.	PAYMENTS.	£ s. d.
BALANCES, 1st January, 1900 :			
Cash at Bank.....	144 12 0	RENT (including Coal, Gas and Electric Light) for one year to Michaelmas, 1900.....	135 0 0
Less reserved for proportion of double number of Journal .....	<u>65 0 0</u>	PRINTING JOURNAL, Nos. 5 to 8, New Series, including illustrations and Authors' copies .....	259 11 0
Petty Cash.....	79 12 0	Less reserved for same last year as per contra	65 0 0
	<u>7 0 5</u>		<u>194 11 0</u>
		SALARIES AND COLLECTOR'S COMMISSION .....	98 19 3
		HOUSE EXPENSES :	
		Attendance and Refreshments at Meetings .....	22 15 0
		Cleaning rooms, etc. ....	17 13 6
			<u>40 8 6</u>
Subscriptions :		STAMPS AND PARCELS .....	42 13 4
For the year 1900.....	364 7 0	PRINTING AND STATIONERY .....	42 0 8
Life subscriptions, 2 .....	42 0 0	LANTERN MATERIALS .....	3 7 8
Arrears .....	37 16 0	REPAIRS AND INSTALLATION OF ELECTRIC LIGHT .....	8 7 6
For 1901 in advance.....	6 6 0	INSURANCE AND SUNDRIES .....	4 5 0
	<u>450 9 0</u>	BOOKBINDING AND LIBRARY EXPENSES .....	12 19 7
		Less received for books, etc., lost .....	2 4 6
SALE OF PUBLICATIONS :		HUXLEY MEDAL AND MEETING .....	<u>10 15 1</u>
Messrs. Kegan Paul & Co. (from July 1, 1899, to June 30, 1900) .....	49 10 11	BALANCES, 31st December, 1900 :	105 5 7
Office Sales.....	14 8 6	Cash at Bank.....	14 4 11
	<u>63 19 5</u>	Petty Cash .....	<u>7 19 0</u>
Dividends for one year on Metropolitan Consolidated 3½ per cent. Stock (less Income Tax) .....	109 1 6		<u>119 10 6</u>
SALE of £1,000 of the above Stock .....	0 11 6		
Less expenses of sale .....	<u>108 10 0</u>		
"MAN," amounts received for (to be repaid) .....	7 6 0		
OVERPAID for books do. ....	0 15 6		
"ANTHROPOLOGICAL NOTES AND QUERIES" : Balance as per last account.....	40 7 0		
Balance of British Association Grant .....	40 0 0		
Sales .....	11 1 9		
	<u>91 8 9</u>		
Less paid for printing, etc., .....	<u>80 19 1</u>		
	<u>10 9 8</u>		
			<u>£707 17 6</u>
			<u>£707 17 6</u>

Examined and found correct,  
 (Signed) RANDALL H. PYE,  
 T. V. HOLMES, Auditors.

25th January, 1901.

has been spent on the library, and it has been supplied with the electric light. The Huxley Medal and Lecture also appear for the first time in the accounts. These various increases in expenditure nearly balance the reduction in the cost of the *Journal*, which latter, moreover, is only due to the temporary delay in publication. In order to have more money to spend on the library and secretarial department the Council has dispensed with the services of its Collector, and trusts that the members will pay their subscriptions direct, without requiring many reminders; for the same reason the Council has resolved to promote "plain living" by the suppression of refreshments before the meetings, while "high thinking" will, on the other hand, be encouraged by the issue of a monthly publication called *Man*. What the effect of these alterations may be on the receipts and expenditure will be seen in two or three years' time, but it is hoped that it will on the whole be beneficial.

The liabilities at the end of 1899 (other than the moral liability to life members) were :—

	£ s. d.
Rent, etc., for one quarter	... ... 33 15 0
<i>Notes and Queries</i>	... ... 10 9 8
Printing, Collector's commission, and sundries, including work on double number of <i>Journal</i> not completed, say	175 15 4
	  £220 0 0

The assets at the same date were :—£500 Metropolitan  $3\frac{1}{2}$  per cent. Consolidated Stock (worth about £540), cash in hand and at the Bankers, £119 10s. 6d., some unpaid subscriptions, and the library, furniture, and stock of publications, blocks, and copyrights.

A. L. LEWIS, *Treasurer.*

## PRESIDENTIAL ADDRESS

DELIVERED AT THE ANNIVERSARY MEETING OF THE

ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND  
IRELAND.

4TH FEBRUARY, 1901.

BY C. H. READ, F.S.A.

No public function in any part of our Empire can take place at this time without an allusion to the grievous loss that has befallen us in the death of our beloved sovereign Queen Victoria. While I do not feel that the occasion calls for many words, I am sure that the members of this Institute would desire that I should express their deep sense of the calamity that has come upon us all. The effect of so long a reign as was vouchsafed to the Queen is that every one of us feels that we are entering upon a new epoch, a feeling that has no doubt some foundation in fact. One remarkable feature of the past few days has struck me forcibly, as it must have struck others, and that is the eminently personal nature of the public mourning, every person one meets has the feeling of having lost a near friend or relation, essentially different from the impression produced by the death of one who was only a great personage in the state. The reason of this intense devotion of her people to the Queen's person is assuredly to be found in that rare womanly sympathy and tactful behaviour that she invariably showed in times of national trouble or disaster—her heart was always with her people, whether in times of mourning or of joy. May it be that her high standard of a royal life has become a firm heritage of the crown of England. In our King Edward VII, a name so entirely grateful to English ears, we have a man who for many years past has devoted himself with singular self-denial to the many and varied duties that fell to his lot, while his more recent utterances have been so full of judgment and royal dignity as to leave no doubt in our minds that he fully recognises the great responsibilities of his unique position, and is ready to bear them in a manner befitting the son of such parents, and worthy of the best traditions of the royal house of England. Long may he reign.

In this the first address from the chair in the twentieth century, it is a real pleasure to me to be able to say that our own branch of science seems to be on the upward road. I ventured at this time last year to foreshadow such an improving tendency, but found somewhat to my surprise that my forecast was not received

with the unanimous assent that I had hoped. This year, in place of vague generalities, I am fortunately able to point to substantial facts in proof of my assertion, facts that admit of no question.

In the first place I wish to call special attention to our own domestic affairs, which concern us very nearly. The report of the Council which you have just heard read, contains much that I consider distinctly cheering. The increase in the number of Ordinary Fellows elected compares very favourably with previous years, and I would point out that the importance this year is not so much in the mere number, for among our new Fellows are some names that stand highest in this country in the study of anthropology and primitive civilisation. Thus we may fairly look forward to finding at our meetings and in our publications the very best material that the country can produce.

Another incident in the past year that I hope may prove fruitful of good things is the inauguration of the Huxley lecture. This lecture was probably the most popular function in the annals of the Institute; and I see no reason why every succeeding lecture should not be equally so. From the nature of the case the first lecture was introductory and general, and no more fitting lecturer could have been chosen than Lord Avebury, whose eminently sympathetic character lent a charm to the subject, which, though full of incident as well as of human interest, might well have been turned into a dry and somewhat academic discourse. That it was nothing of this kind we have to thank Lord Avebury, who thus started this most important connection between the Institute and the general public. With a moderate exercise of judgment, the Huxley lectures may be made a most valuable means of obtaining recruits for anthropology.

I will now allude to another means of attaining the same desirable end, though as far as publication is concerned it belongs to the current year. This is the monthly journal called "*Man*," of which the first number has appeared. This departure from ancient methods we owe to the restless energy and resource of our talented Secretary, Mr. Myres, to whom we owe much in other directions also. It may at first sight seem wasteful to duplicate the matter that ultimately appears in the pages of our *Journal*, but in reality it is not so. It had long been felt a drawback to offering current matter to the Institute that an interval of six months or more would probably intervene before it would see the light in print. For many things it may be that this is no disadvantage, but it will not be disputed that prompt publication has many merits, and perhaps even more for the Institute than for the writer of a paper. Such a journal even of the modest dimensions of our present venture, serves as a medium of communication between students both at home and abroad; it attracts far more material than a quarterly or half-yearly journal can possibly do, and material moreover of a kind that, though of high importance, would be quite out of place in a publication appearing less frequently.

It has another virtue that must not be overlooked, in that it brings into notice at the beginning of every month the useful work that the Institute is doing, a form of advertisement of great practical value. We have reasonable grounds for

hoping that this modest sheet will have such success during the current year that the Council may feel justified in continuing its issue as a regular part of the publications of the Institute.

Another new departure from our ancient procedure that has marked the last year is the appointment of a number of gentlemen located in many parts of the world, as Local Correspondents of the Institute. Here again we think that useful material for our meetings and publications will be forthcoming as a result. These correspondents are invited to contribute notes and papers relating to the peoples with whom they are in daily contact, and their contributions, which will have special value as being first hand, will appear in the *Journal* or in "*Man*" as their nature may demand.

An undertaking in which we propose to play our part is the International Catalogue of Scientific Literature. This vast and comprehensive scheme has at last been brought into something like system and begins its universal work this year. The Royal Society Committee has had no light task in reducing the various and often conflicting interests into a working scheme, and it is no secret that even now there is dissatisfaction among the representatives of the different branches of science with regard to the schedules that form the basis of their contributions. Some overlapping of work there must of necessity be, having regard to the intimate relations of the work of many societies one with another, but to a certain extent the useless duplication of work has been foreseen and prevented by the instructions of the Committee. With regard to the schedule for our own section we ventured to protest against parts of it that we regarded as illogical or unpractical, as well as against its limited character. In great part our protest met with success, and the result was a modification of some parts and to some degree an extension of its scope. The exclusion from such a scheme of every branch of anthropology except that dealing with the physical characters of man reveals, however, a state of mind in English science that can scarcely be called scientific, and differs widely from that prevailing on the Continent or in America. There can be little doubt that it will be found in practice impossible to deal with physical anthropology, which on another side comes very near to comparative anatomy, without taking in the vast amount of important literature dealing with man as a social being and something more than an animal. Thus we have reason to hope that the inherent difficulties of the present arrangement will work for us in bringing about the complete acceptance of all sides of anthropology as coming under the denomination of scientific literature.

I now come to what I think is the most signal step that has been made in the recognition of anthropology as a useful branch of science, and it came about in this wise. Some two years ago I had a conversation with Mr. Risley, who has done such excellent work in India, with regard to the coming Indian census, with the result that the aid of the British Association was invoked, and the India Office appealed to, that some ethnographical material might be collected by the census officers. The scheme as it came from the British Association Committee was in

truth of somewhat formidable dimensions, and it could scarcely be expected that trained photographers and officers competent to take measurements should be attached to the staff of the census, over the whole area of India. But the India Office and the Indian Government were both sympathetic, and the following letter from Sir Arthur Godley to Sir Michael Foster shows exactly what is proposed:—

“India Office,  
Whitehall, London, S.W.

“SIR,

“December, 1900.

“With reference to your letter of December, 1899, and my reply No. R. and S. 3539, of the 16th January, 1900, I am directed to inform you that the Secretary of State for India in Council has now received the remarks of the Government of India on the suggestion of the British Association for the Advancement of Science, that opportunity should be taken to collect ethnographical information by means of the Indian Census of 1901.

“2. The Government of India entirely agree with the Secretary of State's recognition of the importance of the investigations which the Association suggested, but find themselves constrained to say that it is impossible (except to the limited extent indicated in paragraph 4 of this letter) to make these investigations by means of, or in connection with, the Census. They consider that the addition to the Census Schedule of Columns relating to even a small number of ethnographic facts would expand it to unwieldy dimensions; the enumerating agency is wholly unfitted to conduct such an inquiry, and the facts recorded by it would be worthless; and they apprehend that there would be grave risk not only that the accuracy of the entries in the essential columns would be impaired by the additional burden imposed on the enumerators, but also that the unusual nature of the questions asked would give rise to rumours and excite apprehensions which would seriously interfere with the ordinary operations of the Census.

“3. The Government of India also deem it impracticable to carry out the suggestion that photographers should be placed at the disposal of the Census officers, as this, besides being very expensive, would hinder the officers' proper duties, and would delay the submission of the reports which it is desired to complete as soon as possible.

“4. With the view, however, of taking action, as far as may be practicable, in the direction of collecting ethnographical information, the Census Commissioner has instructed the Census Superintendents to endeavour, in the districts which they visit, to obtain, from the most trustworthy sources, particulars under uniform headings regarding the history, structure, traditions, and religious and social usages of the various tribes and castes. The Commissioner considers that nothing beyond this can be undertaken in connexion with the Census operations, and the Government of India accept his opinion; but they have considered the question how far it is possible and advisable apart from the Census to encourage and assist ethnographic investigations in India, and have submitted a scheme by which it is

hoped that in the course of a few years a fairly complete account of the ethnography of the larger provinces may be obtained.

"This scheme has received Lord George Hamilton's approval.

"I am, Sir,

"Your obedient Servant,

"(Signed) A. GODLEY.

"SIR MICHAEL FOSTER, K.C.B., F.R.S.,  
"Burlington House,  
"Piccadilly, W."

Thus it will be seen that in connection with the Census we may expect to have a considerable amount of ethnographical material; but there is a larger matter indicated in the closing words of the letter, where it is stated that the Government of India have "submitted a scheme by which it is hoped that in the course of a few years a fairly complete account of the ethnography of the larger provinces may be obtained." It is to this scheme that I look for something on a scale worthy of the Indian Government. Mr. Risley wrote in the autumn of last year to tell me of the progress that had been made in carrying out the British Association proposals, and explained how considerable delay had been caused by the necessity of dealing with the very severe famine.

I should like in passing to point out the high value of men of the knowledge and experience of Lord Curzon in such a position as Viceroy of India, when a question of this character arises. Lord Curzon has read much and travelled much, and has constantly been brought into contact with the natives of many parts of the world. To a man of his varied experience it is not necessary to bring forward many arguments to show the value in India of such a thing as an ethnographic survey. He already fully realises the importance of it, and must, I am sure, have been of the greatest help to Mr. Risley in carrying the scheme through. What this scheme is may be described in a few words. It will be a regular survey embracing ethnography and anthropometry, and extending over five years. In every province a selected man will be paid to superintend the work, and special monographs on particular tribes will be written by various authorities. Mr. Risley, I am pleased to say, will control the whole as Director of Ethnography for India. No one is better qualified by his previous experience and talents for such a post, and I do not doubt that the results of the five years' work will be found of such value in the administration of the various provinces that ethnography will be recognised as an essential part of the administrative machine. Mr. Risley has asked the help of the Institute in preparing his sets of questions, and this we have arranged that he shall have; but in a general way his plan of operations will be the same as he pursued in Bengal fourteen years ago. Here, again, I think I am justified in claiming an advance in the official recognition of anthropology.

Yet another step has been made in the favourable reception accorded by the Colonial Office to the memorial on the natives of South Africa sent in by the

Folklore Society and ourselves to Mr. Chamberlain. The state of the natives in South Africa, when the time comes for peaceful government, is not easy to foresee. They have experienced in the past the benefits of British rule, and if our officers are allowed a fair field, there will probably be few difficulties. But it is quite on the cards that it will not be easy in some quarters to obtain a fair hearing, and it is in such cases that the thorough understanding of native laws and customs becomes a matter of the first importance. We may be sure that the emissaries working against British influence will be well informed in such matters, and will be ready to take advantage of every superstitious turn in the native mind. Much waste of valuable time, money, and even human lives, will be avoided if the Government takes this matter in hand; the men capable of dealing with the various African tribes will not be hard to find, and I trust that no time may be lost in securing their services well in advance of the actual time when they are needed.

Such are some of the events of the past year upon which I rely to prove my contention that there is a marked advance in the recognition of anthropology; and I think you will agree that they are important enough to justify me in making the claim.

We now have to consider what this all means and the duties it entails on us. So far as the Government or official point of view is concerned, it is a commonplace that routine is apt to control all official action, and that a new departure, while it may come from within, more generally, and in some ways beneficially, has its origin outside a Government department. The ethnographic survey of India, of which I have just spoken, is a case in point. I think it possible, in this case, that we have obtained a greater concession from the scheme having been put forward through the British Association than would have been the case if it had originated entirely with the Government of India, though at the same time I fully recognise that it is to the enlightened foresight of Lord Curzon that we owe nearly the whole of the power we possess.

Whether this is the case or no, it certainly behoves the Council of this Institute to keep now a watchful eye on the current of public events, so that no opportunity is lost of placing in an obvious light the utility of anthropological methods. The concessions in this direction that we have obtained of late from ministers and other public men should be used with judgment and assiduity in obtaining constant, instead of occasional, recognition of the value of our work. I have always found that, properly approached, the officers of the higher branches of the civil service are quite ready to listen to and forward any scheme that has a reasonable chance of success and is not too costly.

So many great undertakings in this country are, however, the outcome of private enterprise that it must be borne in mind that fully as much energy is engaged in private ventures among primitive peoples as can be found in official circles. I need only instance the Niger Company and others of the kind on the African Continent, without going back to the East India or Hudson's Bay

Companies, one of which has long been Imperial as the other is gradually becoming absorbed in the Empire. We should in time, if circumstances continue to favour us, be in a position to give the officers of such companies valuable information for the conduct of their affairs with natives, and thus be of distinct value to commercial enterprise. It is only by such measures that the real utility of scientific methods can be brought home to the public mind; and when I say that we must see to this, I do not of course mean that this Institute is to do the work alone, though I trust that it will be always in the forefront, but that all who are working at, or interested in, anthropology must lose no chance of forwarding the study, and of putting before both the official and commercial world the money value of its results. In order to anticipate possible criticism it may be well to say definitely that I have no wish to regard this or any other branch of science as primarily a money-getting business. There are many discoveries and methods in science that have conferred an immense boon on humanity without putting a penny into anyone's pocket. It is well that it is so, for I am inclined to think that a branch of science that is essentially commercial is very apt to some extent to lose caste from this very fact. My point is that anthropology can confer benefits on the State and on the commercial world, and may, therefore, fairly demand the corresponding reward. The reward may in some cases take the form of public recognition, or it may be something more substantial and tangible; but in either case it would be a benefit that we cannot afford to overlook, and, in my judgment, is worth trying for.

There is one other matter that I have more than once publicly advocated, and that is the more definite recognition of anthropology in our teaching centres. This really is closely connected with my previous argument, and thus may well follow it. I say *definite* recognition, for in most Universities there is a kind of half-hearted course into which anthropology enters to a degree; but the way, if not the will, seems wanting to put the teaching on its proper footing and to let it stand on its own merits. At Cambridge the way is slowly opening, and I trust that within a few years there will be a chair of anthropology filled by one of the competent and energetic men now working there at the subject. Here, again, it is at this moment the want of means that blocks the way, and I would venture to suggest that a beginning should be made by one or more of the many wealthy men interested in Cambridge or in science or in both. I believe a first-rate man would be forthcoming if only an income of say £300 a year were ensured for a limited term of five to ten years. If this could be done it would be beneficial in two ways. It would secure a good man for the University, and he would then have the opportunity of proving to the University that anthropology really was a branch of science and that there was no need to mask it as part of a medical degree, or to call it by anything but its real name. If at the end of the time the unlikely event happened and it was found to be a redundancy and useless, then the course to be taken by the University would be simple and nobody could say a word of reproach. I speak of Cambridge particularly, because the strides made there in this direction

during the last few years are most remarkable, and I think the scheme I propose would be received with favour, as well as give them at the same time a helping hand in the direction in which they are now going vigorously. But I would by no means wish to limit the chairs of anthropology to the two great Universities. *Primâ facie* it might be thought that some of the others would be more likely to take up the subject, say for instance Birmingham, where the scope of the new University has been the subject of a good deal of consultation. Here would be a chance ready to hand of putting into practice the useful side of anthropology.

With regard to the newly constituted University of London I have already stated my view, but difficulties stand in the way of what I still think is a practicable scheme. One part of it, though not an essential one, was the installation by the side of the University of the anthropological collections now belonging to the nation. This would provide a concrete centre for anthropological study, such as seems beyond the possibility of realisation within any reasonable time. Speaking entirely as one of the public, and not as an officer of the British Museum, for I have no information, it certainly seems unlikely that any addition to the Museum of a useful size will be made during the next few years. The enormous cost of the South African campaign will be held a sufficient excuse for any Chancellor of the Exchequer for some time to come, and meanwhile what is to be done?

I have recently received from Dr. von Luschan, one of the directors of the Museum für Völkerkunde in Berlin, a strong statement that he has recently printed in "Die K. Knorrsche Sammlung von Benin-Altertümern . . . in Stuttgart," 1901 (p. 3), in which he comments in very forcible terms on the neglect of our opportunities that is so common in England with regard to matters ethnographical. He points out how in Berlin the colonial officials are constantly helping the national museums, and calls especial attention to the way in which the spoils of British blood and treasure obtained at Benin were sold to foreign museums.<sup>1</sup>

<sup>1</sup> Zunächst waren natürlich die Bemühungen der Fachleute mehr darauf gerichtet, den einzelnen Sammlungen einen möglichst grossen Anteil an dem Funde zu sichern, als darauf, die Stücke selbst ernsthaft zu studieren. So begann ein Jagen und Preistreiben, wie es in der Geschichte der ethnographischen Museen unerhört ist und sich wohl niemals wiederholen wird. Dabei zeigte sich die merkwürdige Erscheinung, dass England selbst nicht im stande war, den in einer britischen Kolonie entdeckten und mit britischem Geld und Blut gehobenen Schatz auch ganz allein für das britische Museum zu sichern. Das steht mit der unbegreiflichen und nahezu frevelhaften Geringsschätzung im Zusammenhang, welche der Völkerkunde und der ethnographischen Abteilung des Britischen Museums gegenwärtig seitens der Britischen Regierung zu teil wird. Die Mahnrufe eines so ausgezeichneten Forschers und so hochverdienten Beamten wie C. H. Read werden in den Wind geschlagen und die oberste Leitung des Britischen Museums selbst scheint die ethnographische Abtheilung nur als ein lästiges Anhängsel zu betrachten, das in jeder Weise niedergedrückt und klein erhalten werden muss. So fehlt es jetzt in London nicht nur an Geld zum Erwerben und an Raum zum Aufstellen von ethnographischen Sammlungen, sondern auch an jenem harmonischen Zusammenarbeiten der Kolonialverwaltung mit den wissenschaftlichen Instituten, das z. B. in Berlin so schöne und wichtige Resultate zeitigt. Deshalb entsprechen die kolonialen Sammlungen im Britischen Museum auch nicht entfernt der politischen Bedeutung des

He says that the Ethnographical Museum in Berlin is now seven times as extensive as the collection in the British Museum, and will in a few years be ten times as large, while every year that passes sensibly diminishes the stock of available specimens, not so much by destruction as by the change in the habits of the natives. This is not pleasant reading for one in my position, nor should it be any more pleasant for any Englishman interested in the all-round progress of his country. How can it be bettered? For my own part I do not think that any marked improvement can take place until a proper home is found for the anthropological collections where they can be set out in a useful and scientific manner, instead of being considered an excrescence on the national library and archæological collections. As I before suggested, if they could be set down in the Imperial Institute they would be conveniently near the students of the London University and would be appropriately placed in the vicinity of the Natural History Branch of the British Museum, to which latter institution they would of course continue to belong.

On the score of popularity the ethnographical collections of the British Museum have no need to complain—with the public they come next in interest to the Egyptian mummies—but I feel sure that in sufficiently large galleries to admit of their proper display the popularity would be far greater, while the advantage to the collections themselves would be incalculable, both in the greater facilities for study and—what I am sure would follow—much more numerous accessions.

I can think of no better solution of the difficulty than this, and I therefore venture to repeat it here, at the risk of being tedious. What I have put together here is little more than an amplification of the Council's report. But I have

Weltreiches, und so gehen der Wissenschaft Jahr um Jahr kostbare Schätze überhaupt ganz verloren, weil in dem Augenblick, in dem allein sie gehoben werden könnten, der richtige Mann an der richtigen Stelle fehlt.

Ich würde keinerlei Veranlassung haben, britische Verhältnisse hier zu beleuchten, und es würde mir vielleicht mehr zustehen, stillschweigend mich darüber zu freuen, dass die Berliner Sammlung jetzt siebenmal so gross ist, als die Londoner, und in einigen Jahren vielleicht schon zehnmal so gross sein wird—aber über das lokale Interesse hinaus giebt es ein allgemein menschliches, und dieses erfordert, dass auch in England selbst endlich begonnen wird, der ethnographischen Erforschung wenigstens der eigenen Schutzgebiete jenen Grad von amtlichem Wohlwollen entgegenzubringen, der durch den Ernst der Lage geboten ist. Denn ethnographische Sammlungen und Beobachtungen können entweder jetzt, in zwölfter Stunde noch gemacht werden, oder überhaupt nicht. Alte Kupferstiche und Bilder wird man auch in hundert Jahren noch kaufen oder wenigstens studieren können, genau wie heute, weil sie im Kunsthandel und in allerhand Sammlungen sorgfältig konserviert werden—der ethnographische Besitz der Naturvölker schwindet aber unrettbar dahin vor dem zersetzenden Einfluss einer fremden Kultur. Handel und Verkehr, Missionare und Beamte arbeiten heute alle gleichmässig an dieser Zertrümmerung des Alten, und je energischer die materielle Besitzergreifung, um so gründlicher und schonungsloser ist auch die Zerstörung der alten Sitten und Gebräuche. Diese müssen jetzt studiert und für die Nachwelt festgehalten werden oder sie bleiben der Wissenschaft für ewig verloren. In diesem Sinne schien mir dieser Excurs im allgemeinen ein *nobile officium*, dem ich mich nicht entziehen durfte, auch wenn ich voraussehe, hier und dort bei kleinen Geistern anzutossen, aber er schien mir auch im besonderen nötig, um zu zeigen, wie es überhaupt möglich ist, dass auch nur ein einziges Stück der englischen Kriegsbeute von Benin in eine kontinentale Sammlung gelangen konnte.

felt strongly for many years past the urgent necessity for some action in the various directions indicated that I think my duty on this my last appearance in the Presidential chair cannot be better performed than by pressing home by other arguments the recommendations the Council have put before you.

I cannot pass by the list of our losses during the year without a reference to at least two of the names in it.

I need scarcely say many words about a man of the distinction and world-wide reputation of Professor Max Müller. His contributions to the history of language have secured for him an assured place in the temple of literature.

General Pitt-Rivers is for us in this room a much more familiar figure, and his death makes a gap that will scarcely ever be entirely filled. Endowed by nature with talents of no mean order, he was untiring in his investigations into the problems of early archaeology and anthropology. It is to him that we owe the application of the theory of evolution to ethnological objects, which, even if it was at times strained in the application, was without doubt in the main justified. He had for many years been a collector and explorer of prehistoric sites, when by a singular chance he inherited the Rivers estates in Dorset and Wiltshire, which were full of ancient remains of just the character that was to him of such interest. There, within the limits of his own park, he found enough to give him occupation for the remaining twenty years of his life. His methods of exploration were most thorough and scientific, and the possession of ample means enabled him to print full accounts of all his work in a minute and accurate style that would be difficult to surpass. These volumes alone would be a sufficient monument for any man, but they were only a part of the work that he laid upon himself. In his museum at Farnham in Dorset is to be seen a large-scale model of every excavation he undertook, showing with the utmost precision the exact position of every object found, while the objects themselves were shown in cases near by. The museum contained many other things, however, besides the local relics, and it was always fascinating to hear the General explain his reasons for gathering together, in the heart of the country, collections of such variety and extent. By a recent judgment of the Court of Chancery it is now clear that the museum is to be kept up in the same way as during the General's lifetime. This, I may say, was his intention, but the Court ruled that some of his provisions were impossible. I have made no mention of the Pitt-Rivers Museum at Oxford, a gift from the General to the University, for this, under the charge of my friend Mr. Balfour, is now so well known as scarcely to need a reference. It differs from other museums not so much in its contents as in the method of arrangement. This certainly adds greatly to the interest of the objects, and is at the same time a fresh testimony to the originality of the General's ideas.

To many of us his commanding figure and somewhat masterful ways were very familiar; while as President of the Institute he imported something of military methods into the procedure. His enthusiasm, his energy, even when in very poor health, and his versatile talents compelled one's admiration, and for my

own part I may say that I had a great regard for him. He was of a type rarely found, and now that he is gone there is no one to take his place.

In Miss Mary Kingsley we have a very different personage. Kindly, sensible, observant, with a cleverness that was not of a common sort, it was impossible not to like her. If her genial face and smile were not a sufficient passport, her common sense would certainly hit the mark. Apparently frail even to delicacy, it is marvellous to think of the endurance she showed in her West African journeys. Her influence was no less wonderful, and will long survive her short but well filled life. The "Mary Kingsley Society," founded by her friends and admirers in the hope of carrying out some of her plans for the bettering of the state of men, black and white, in West Africa, will assuredly last until it has done its work. A part of the general fund raised in memory of Mary Kingsley will be given to the Hospital for Tropical Diseases in Liverpool, while another part is to be devoted to the collection of native history tradition and religious or superstitious ideas. With this latter scheme the Institute must necessarily be in entire sympathy, and we will hope that it may begin its work soon under the best auspices.

This is the burden of what I have to say in my last appearance as your President. In leaving this dignified post, to which you were good enough to elect me two years ago, I must ask you to accept my gratitude for the kind way in which you have borne with my short-comings. There is only one merit that I can honestly lay claim to, and that is that I have been a good attendant at the meetings. Otherwise I fear I have not been able to give as much time to the work of the Institute as I could have wished, but that was entirely beyond my own control—a very small part of my time is my own.

Here I should like also to express my thanks to the various officers of the Institute, who have helped me through many difficulties during the past two years.

I now leave you with the greatest confidence under the guidance of my distinguished friend and yours, Professor Haddon. In him the Institute has a man equally conversant with the theory and practice of anthropology. His wide experience of travel, joined to assiduous study and practice in teaching at home, make him in many ways an ideal President of such a society as this. That he has the interests of the Institute at heart I am quite sure, and I am equally sure that he will be loyally and ably supported by the officers in every step that may lead to advancement or improvement.



## ON THE RUINS OF DHLO-DHLO, IN RHODESIA.

BY FRANKLIN WHITE.

[PRESENTED APRIL 23RD, 1901. WITH PLATES I-V.]

IN the central portion of Rhodesia there are numerous stone constructions, now more or less in ruins, scattered over a considerable area. So little is accurately known about them that it is not possible to say definitely with what object they were built. The native races of the present day attribute to them mysterious origin of the class which usually appeals to the ignorant imagination.

The occupants most certainly not only possessed but also smelted and worked gold.

The ruins are generally found on or near granite knolls or bosses, not as a rule actually in the gold-bearing districts, although auriferous veins are often found at no great distance away. The builders seem to have selected in preference an agricultural country with positions easily defended. The granite areas, with their numerous streams, bare knolls, and scattered boulders, would best comply with these requirements.

In his *Ruined Cities of Mashonaland* Mr. Theodore Bent records the results of his exploration of the Zimbabwe ruin, the most extensive yet discovered, and it is to be regretted that such systematic research has not been continued. Now, additional knowledge can only be gained from occasional visits of travellers to ruins lying near their routes or from work carried on chiefly in search for gold and ornaments. The latter is fortunately conducted in such a way as to do the least damage compatible with the treasure-hunting, but it naturally is not done with the object of collecting information or of investigating points of interest.

## GENERAL DESCRIPTION.

The Dhlo-Dhlo or Mambo ruins, the subject of this paper, are located some 50 miles north-east of Bulawayo, or say  $19\frac{3}{4}$  degrees south and  $29\frac{1}{4}$  degrees east.

The level above sea is about 4,500 feet.

They occupy a commanding position on a granite plateau between two streams forming part of the head waters of the Inciza River, a tributary of the Limpopo.

The name "Mambo" is derived from the designation of the tribe of Kaffirs who occupied this country before the Matabeles conquered it.

I was able to make a fairly accurate plan of the most important part of these ruins and to take some photographs which show the construction of the walls and the different styles of ornamentation used by the builders.

Some prominent bosses of bare granite were made use of as base for the walls, and the builders were fully aware of the tendency of granite to peel off in slabs under atmospheric influences, perhaps assisted by fire. They thus obtained a large supply of material well suited for their purpose and close at hand. From the hills a few miles away they brought slabs of banded ironstones, which were ingeniously used to form a contrast with the grey of the granite.

A reference to the plan (Pl. I) will show that the main building is of a rough egg-shaped form 350 feet long and 200 feet wide, the longer axis running north-west and south-east. There are two outer enclosures attached to the main building, one being on the north-eastern and the other on the south-western side.

The northern and south-western sides of the ruin show the finest as well as the highest walls. The main entrance was undoubtedly on the north side. There are several isolated buildings surrounding the main ruin, of inferior construction

#### STYLE OF CONSTRUCTION.

The buildings are made of blocks or small slabs of granite varying generally from 7 to 11 inches in length and  $2\frac{1}{2}$  to 5 inches in thickness. The lower courses are generally made of larger blocks. Smaller pieces are used for the ornamental work.

There are no real foundations to the walls; they just begin on any ground firm enough to carry them. As they are seldom more than 8 feet high in any one face the weight is not great. Where additional height was required the walls were raised in tiers, the upper one being stepped back, leaving a ledge varying from 1 to 12 feet in width, widening and narrowing without any apparent reason. No mortar or clay was used in the wall proper, but the top was covered with a layer of clay and ground-up granite.

Although curves and rounded endings-off to the walls were apparently preferred, still angular corners and straight lines could be made when considered advisable.

The batter of the walls varies, but is generally slight. At one point the top actually overhangs the base.

Some walls were made with two faces, the intervening space being filled up with rubble.

The courses preserve their thickness fairly well. In some cases a course widens, and in others disappears.

Boulders of granite lying on the surface were made use of as part of the wall whenever possible.

The most striking feature of the walls is the attempt made to introduce some style of ornamentation. In these ruins the following variations can be seen:—

- 1st. Lines of a different coloured rock (Pl. II, fig. 2; V, fig. 1.)
- 2nd. The chess board, or chequered pattern.

This varies (Pl. V, fig. 3) from the ordinary gap and stone in

one to eight courses, and groups of three spaces with thin blocks in two courses, separated by two thicker blocks.

- 3rd. The zigzag pattern (Pl. III, figs. 2, 3; IV, fig. 2).
- 4th. The sloping block (Pl. II, fig. 2; III, fig. 2; IV, fig. 1; V, figs. 1, 3) varied by alternating granite with red banded ironstone slabs.
- 5th. The chevron or fish-bone pattern (Pl. II, fig. 2; IV, fig. 1) varied by alternating red and grey blocks, either in patches (Pl. II, fig. 2) or singly and in patches separated by thick granite blocks.

It will be noticed (in Pl. II, fig. 2; IV, fig. 1) that the sloping blocks incline respectively to the west and to the east, or in different ways on each side of the main entrance.

As far as I have been able to observe the ornamented patches commence and finish off in an arbitrary or capricious manner and are not confined to any one part of the walls.

#### DESCRIPTION OF RUINS.

To the south and south-west of the main ruin there are numerous and extensive enclosures, the walls of which seldom exceeded 6 feet in height and were of somewhat inferior construction. As the grass was high no careful examination could be made. They were probably cattle pens or locations for slaves.

The large enclosure (R) on the western side of the ruin is surrounded by a wall considerably destroyed, but in parts still showing a height of 7 feet. It was well built and was ornamented with a band of red stone and also with a course of sloping blocks (Pl. V, fig. 1).

About 100 feet to the north of the main entrance is a roughly built enclosure (M) 75 feet by 90 feet with one entrance on the east side (Pl. I, fig. 2.)

To the north-east of the main entrance and about 155 feet away is a circular platform (N) considerably destroyed, but apparently  $4\frac{1}{2}$  feet high and 30 feet in diameter. Behind this there is another enclosure (O) some 80 feet by 60 feet, with two entrances, one on the north-east and one on the south-west.

On the south-west side of the main ruin there is a well built enclosure or platform (P) 95 feet wide by 100 feet long. It is built up on a rather steep slope strewed with granite boulders, some of which have been utilised as part of the walls. Only one entrance can now be seen, outside the main wall. There may have been a communication with the main ruin, but the wall at this point has been pretty thoroughly broken down, and no signs of a doorway can be seen.

About 100 feet from P is the large area (R) 300 feet long by 190 feet wide. It had clearly a main entrance at D, and others may have existed in the parts of wall now broken down. The ground here is flat and good, and this enclosure was probably a garden or cattle pen.

Between P and R there is a mound of ashes, broken bones, potsherds, etc. It is evidently the refuse heap of the later Kaffir occupants of the ruins and is now higher than the top of the wall of platform P. It probably lies over a small ridge or granite boss.

Some 300 feet north-west from the main entrance is another stone construction (H) perched in a commanding position on the precipitous northern face of a granite boss which slopes gradually southwards (Pl. I, fig. 1). The wall is well made, but it apparently did not form a complete enclosure. There is a rather elaborate entrance at H, and some very regular ornamental work (Pl. V, fig. 3).

On the east side of the main ruin there is a large enclosure 120 feet along the wall and 95 feet in depth. It had apparently one gateway on the south-east side. There are indications of interior divisions or walls, but the whole is too much destroyed and grown over by bushes to be properly examined without considerable labour.

#### DESCRIPTION OF THE OUTER WALLS.

The main approach was evidently on the north side, where there is an arrangement of roughly built slopes and platforms leading up to what is certainly the main entrance (C). This is seen in Pl. II, fig. 1, as a dark gap, and one side is represented in Pl. IV, fig. 3. A long narrow passage running to the centre of the ruin attracted our attention, and a little work spent in clearing away the fallen stones and rubbish showed the remains of two stout posts of hard red wood  $5\frac{1}{2}$  feet apart on the west side. The tops of the posts are burnt. They lie partly in recesses carefully built in the wall. On the east side can be seen similar recesses. The opening is 11 feet in width, and goes back 15 feet, where there are signs of another pair of posts, and the passage commences 7 feet in width.

The wall to the east of the entrance is still 8 feet high and is apparently nearly its original height. About 25 feet from the main entrance a chess-board pattern of seven courses commences (Pl. II, fig. 2) in a somewhat irregular manner. Over this and separated from the top by three courses runs a line of dark ironstone, and three courses above this there is another row of dark stones changing suddenly into a course of chevron pattern formed of white and dark stones in patches, the points being to the east. Three courses above the chevron and commencing over the western end is a row of sloping blocks dipping to the west. Four courses above this and more or less over it is a three-course line of chess-board pattern also commencing at the end of a line of dark stones. Two of these bands of dark stones run nearly to the main entrance, but this portion of the wall is built in a somewhat slovenly manner, although it cannot be said that there is distinct evidence that it has been pulled down and rebuilt. The ornamentation cannot be traced eastwards, as the wall is partially destroyed and partly hidden by the fallen stones.

On the western side the walls attain greater height, being in three tiers, the

top being some 16 feet above the base. At about 16 feet from the side of the entrance the walls turn outwards for say 5 feet and then run west for 30 feet to a carefully constructed corner (Pl. III, fig. 2). The first corner is partially filled up by a diagonal wall roughly built.

This section of the wall is ornamented as follows:—At the base of the lower tier there is a row of chevrons spaced off by thicker blocks. The chevrons are formed of alternate dark and white blocks and point to the west. Eight courses above this is a row of sloping blocks (white and dark) dipping to the east. Three courses over this runs a three-course line of chequers.

The upper tiers were no doubt ornamented, but the faces are much damaged now.

To the west of the second corner (Pl. III, fig. 2) we see the first piece of the zigzag pattern commencing near the top and about 3 feet from the corner. It can be traced westwards as far as the wall is intact, but does not appear to have continued right round to the western face (Pl. II, fig. 3). Three courses below the zigzag is a line of sloping blocks dipping east, and three courses below this is a two-course chequer pattern. There is, therefore, no continuity of pattern to be seen in the lower tier. The chevron pattern is also missing to the west of the corner.

The two upper tiers were ornamented, the upper one with a zigzag pattern apparently corresponding to that on the western face. There are patches of zigzag pattern in the middle tier, but the walls are too much destroyed for me to be able to trace if the patches on the upper and lower walls correspond at all.

The western face (Pl. II, fig. 3) is very fine, the tiers being 7 feet, 5 feet and  $4\frac{1}{2}$  feet high, standing back each from 12 to 5 feet at the widest part, thus leaving broad platforms or ledges, which, however, narrow considerably at the turn (D).

The upper tier finishes off at a corner, where there were probably steps leading to the top platform. The ornamented courses finish about 3 feet from this corner.

The patches of ornamentation follow more or less regularly along the north and west wall of the building, and are most abundant where the walls are most bold.

The high western wall gradually alters beyond the corner. The upper tier apparently turned eastwards, enclosing the upper platform, about 80 feet in diameter.

The second tier continues southwards for about 50 feet, then turning eastwards to form the second platform.

The bottom tier runs on for about 120 feet, then a part turns east at right angles and forms another platform and part of the inner line of defence. An extension of it ran some 100 feet to the south-west, finishing off at a huge granite boulder which forms one side of the southern entrance.

At the western side of this entrance a well built wall commences. It is

6 to 8 feet high and about 5 feet wide at the top. It runs without a break round the south and eastern side until it butts up against the continuation of the north-eastern wall. Inside the wall is a passage or ditch 8 to 15 feet in width, blocked at both ends. Apparently the idea was to catch the enemy between the outer and the inner walls.

#### CENTRAL PASSAGE.

This commences at the northern or main entrance and runs about due south (magnetic) for 100 feet with a width of 5 feet to 7 feet. It then turns off a short distance to the south-east. The two walls finish with well made square ends.

The walls of the passage are now about 6 feet high, but there is some rubbish on the bottom.

A large heap of stones blocks the main entrance. It is possible that it was originally covered over with wooden beams carrying a stone parapet.

The recesses in the wall in which the posts are partially imbedded may correspond to what Mr. Bent saw at Zimbabwe and considered as grooves for a portcullis.

#### PLATFORMS.

The top of the main platform was evidently covered over with cement or fine concrete made of clay and ground-up granite. Treasure seekers have dug a hole near the centre, exposing chiefly loose stones. On the top of the platform are several raised ledges or benches of concrete.

On the platform east of the main entrance there are indications of a large circular dwelling which evidently had hard wood posts built in a cement wall. The same thing can be seen on the platform to the south.

In the enclosure P are the remains of a circular clay wall 10 feet in diameter, with a small hole about 2 feet in diameter in the centre.

On the top of the granite boss at H are remains of three circular clay walls or floors.

It is impossible to say whether these clay or cement structures belong to the same age as the stone walls. Some are of much better construction than others, the better being probably older Kaffir work. The stone wall builders may have used circular dwellings, and the idea would be copied by the natives of the country, although in an inferior class of work.

In the Khami ruins, near Bulawayo, are remains of a superior class of circular dwellings which I am told are similar in character to huts in use at the present day by Kaffirs living near Lake Ngami; on the granite hills near Khami can be seen remains of very inferior circular mud huts built by natives of the present day.

There is a notable absence in the Dhlo-Dhlo ruins (as in all others) of the remains of dwellings and of places of burial corresponding to the number of persons who must have been employed in their erection and occupation.

## INDICATIONS OF OCCUPATION.

I was not fortunate to find anything of note in these ruins, except a piece of thin silver plate with an embossed pattern and a few pieces of broken glass, possibly parts of the widely distributed gin bottle partly calcined by the grass fires. I am informed that two small Portuguese cannon and a considerable quantity of silver articles such as would be used by the Jesuit Fathers who would accompany an early Portuguese expedition were also found here, chiefly round the enclosure H. No doubt these ruins were used as a convenient resting-place, but it can be inferred that the expedition left hurriedly.

In the large ash heap I was only able to find pieces of pottery of inferior manufacture, pieces of bones, and teeth of animals, chiefly of the antelope tribe.

I am not aware that any emblems have been found such as those which Mr. Bent discovered at Zimbabwe. The Dhlo-Dhlo ruin, therefore, seems to have been a fortress rather than a temple, and was probably one of a chain of strongholds connected with the main route from the east coast. Sofala Bay was probably the port of entry, as Portuguese records refer to it as being occupied by "Moors," a term which is equivalent to "inhabitants of Africa."

But even if sacred emblems are wanting, it seems that if people of Phœnician origin built these structures the pronounced characteristics of style of building, of general design, and also of the ornamentation used will be sufficient as points of identification with such work in other parts of Africa or of Asia.

One thing is clear, and that is that this class of building is only found in South Africa in the vicinity of gold-bearing districts. Also worked gold is found about them.

There are no definite indications that the occupants were destroyed and any deliberate attempt made to pull down their buildings. The harm that has been done may be fairly ascribed to the ordinary Kaffir in search of material to make his cattle kraal or base of his huts. If the Phœnicians were the builders they may have abandoned the country in the same manner as the Romans left Britain when their mother-country was in the last stages of its existence. If this theory is correct these ruins would be at least 2,300 years old.

It is quite possible that the native occupants of the country would retain some of the ideas of building, of pottery work, and of working the gold mines, but these would gradually die out.

In the Khami ruins are found numerous flakes of quartzitic rock, agate, etc., and roughly formed stone implements, indicating that this locality had been inhabited by an early race before the time of the wall builders. These latter were the workers in gold. There are also found remains of iron assegais and bangles which may be considered as corresponding to the work of the natives of the present day. Considerable care is required to discriminate between these records of different periods.

Mr. Bent in his *Ruined Cities of Mashonaland* attaches great importance to the following points as seen in the Zimbabwe and other ruins:—

- a. That the patterns on the walls were constructed with a special purpose, having always the same aspect, viz., south-east (page 103).
- b. The south-eastern wall is much better built (page 105).
- c. The chevron pattern coincides with the sacred enclosure inside (page 110).
- d. The wall in front of the sacred enclosure was decorated with courses of black slate omitted in the inferior continuation (page 112).
- e. Special attention was paid by the constructors to the curves (page 130).

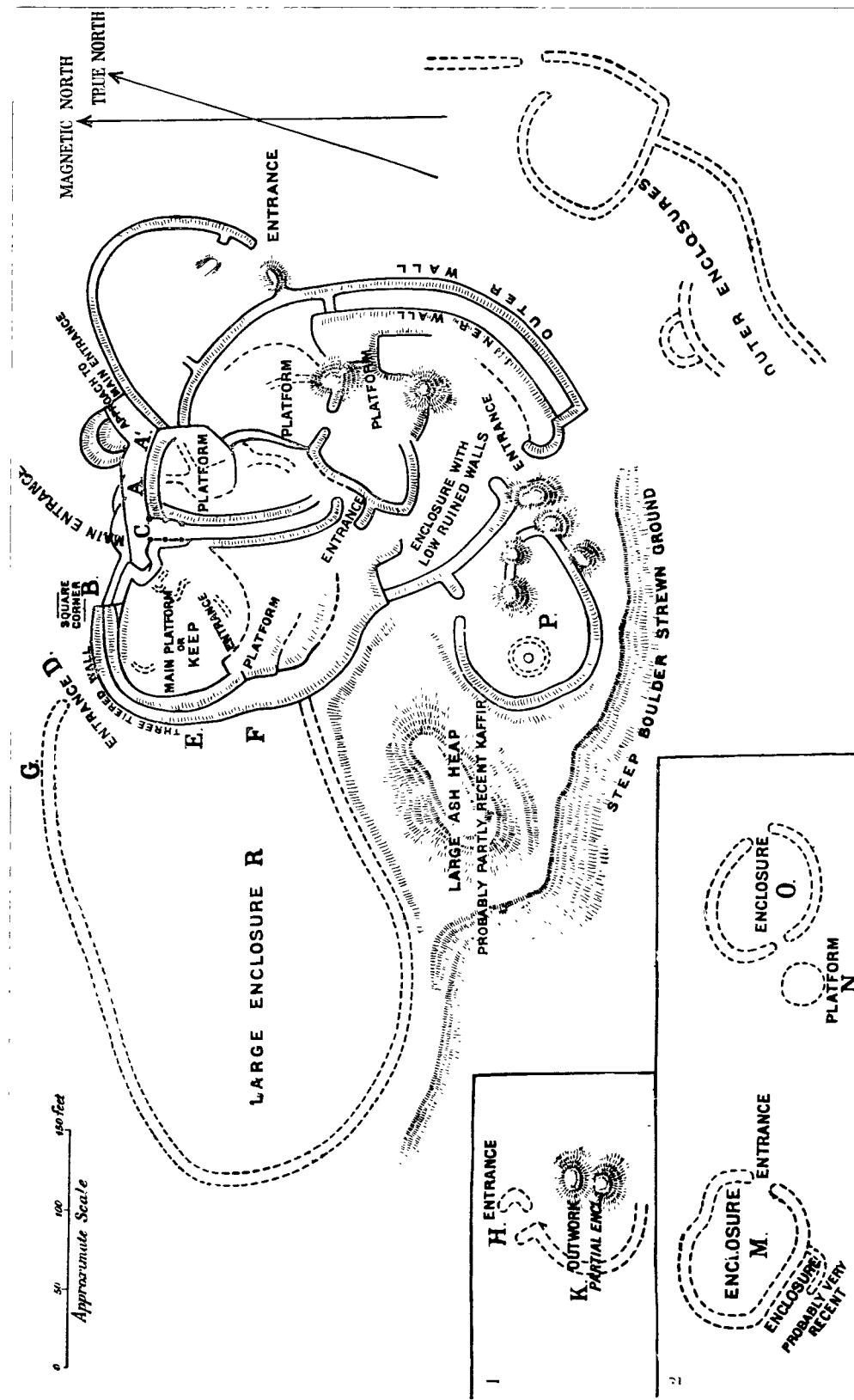
At the Dhlo-Dhlo ruins we find:—

- a and b. The most ornamented and better constructed portion of the building was on the north and north-west.
- c. The chevron pattern runs all round this portion, probably in patches.
- d. Black slate courses are to be seen in all the main walls and also in the wall of the outer enclosure.
- e. The curves of the walls are apparently chiefly influenced by the desire to take full advantage of the ground on which they are built, and by the proximity of boulders.

It seems, therefore, that before any theory can be definitely put forward as to the special significance of any of these points the characteristics of a number of different ruins should be carefully studied and recorded.

#### DISCUSSION.

The PRESIDENT congratulated Mr. Franklin White on having made such an excellent survey of these interesting ruins while he was engaged on other work. If the secret of their origin is ever to be wrested from the remarkable stone structures that appear to be so widely distributed in South Africa, it will be necessary that systematic surveying and excavating should be organised before it is too late. The operations of irresponsible treasure seekers must inevitably destroy or falsify much of that evidence upon which accurate conclusions can alone be based. It is, to say the least of it, unfortunate that the gold ornaments which the treasure-hunter discovers are melted down without any record being kept of the finds, or without the curators of museums and other collectors having an opportunity of securing specimens. It is also most probable that other objects which have no obvious money value are passed by or destroyed, and in any case the evidence is lost of the association of objects in any one find. The various Governments in South Africa should take all these ruins under their protection and the rifling of treasure should be prohibited. Antiquities such as these are national assets, and they should not be allowed to be frittered away by private exploitation.



RUINS OF PHALO-HLILo, OR MAMBO.





1. NORTH-EAST SIDE.



2. ENLARGED PORTION OF NO. 1.



3. WESTERN FACE.

RUINS OF DILO-DILO.





1. NORTH-WESTERN SIDE.



2. ENLARGED PORTION OF NO. 1.



3. NORTH-WEST CORNER FROM EAST.

RUINS OF DHLO-DHLO.





1. PORTION OF NORTH-WEST SIDE.



2. SQUARE CORNER IN NORTH-WEST SIDE.



3. ENTRANCE IN NORTH FACE.

RUINS OF DHLO-DHLO.

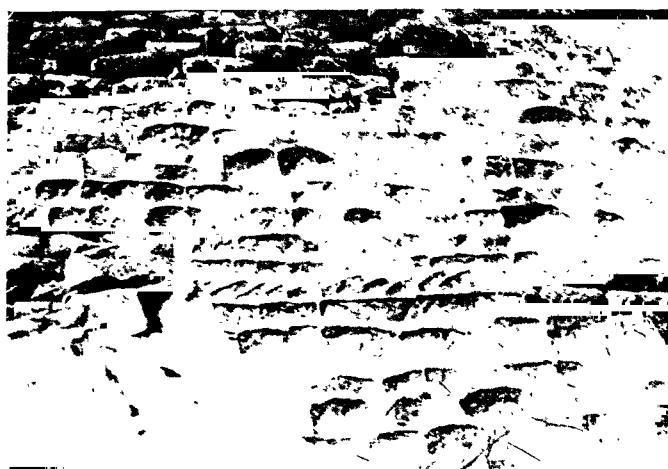




I. OUTER ENCLOSURE. (G)



2. ENTRANCE TO OUTER ENCLOSURE. (H)



3. OUTER ENCLOSURE OR GUARD HOUSE. (H)

RUINS OF DHILO-DHILO.



## MAORI TATU AND MOKO.

BY H. LING ROTH.

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## 1. THE WORDS TATU AND MOKO.

BOUGAINVILLE does not appear to mention the word *tatu*, although he must have known the art, for he wrote as follows:—"Men and women dye their loins and buttocks of a deep blue. . . . I cannot say how they do to impress these indelible marks, unless it is by puncturing the skin and pouring the juice of certain herbs upon it as I have seen it practiced by the natives of Canada."<sup>1</sup> The word *tatu* appears to be first mentioned by Cook and Banks in their respective journals when at Tahiti in 1769, and is to be found in its original form *tattow* in Wharton's transcript of Cook's *Journal of his First Voyage*,<sup>2</sup> and Hooker's transcript of Banks's *Journal*.<sup>3</sup> Parkinson spells the word with an " after the *t*, thus *tataowed* and *tataowing*,<sup>4</sup> and Ellis spells it *tatau*.<sup>5</sup> The Maories called the operation or design *amoea*.<sup>6</sup> Joest says the English originally wrote *tattow* or *tattow*,<sup>7</sup> but the former spelling was certainly not used by Cook nor by Banks. According to Hale, "The word *tau*, or *tatau*, from which 'tattoo' is derived [he

<sup>1</sup> *Voyage Round the World*, 4to, Lond., 1776, p. 251<sup>2</sup> p. 93. For Cook's First Voyage I have used Wharton only, Lond., 1893; for his Second and Third Voyages I have used Hawksworth. It is a curious fact that in many descriptions of the people met with, Cook and Banks have used almost identical phrases and frequently exactly the same words.<sup>3</sup> Lond., 1896, p. 124.<sup>5</sup> *Tour in Hawai*, Lond., 1830.<sup>7</sup> *Tätowiren*, Berlin, 1887, p. 8.<sup>4</sup> *Journal*, Lond., 1773, pp. 25, 90, 96, and 97.<sup>6</sup> Banks, *op. cit.*, p. 203.

says it means marking, p. 354] is applied to it in most of the islands." In New Zealand, however, *moko*, meaning properly "lizard," or "serpent," is used—perhaps in reference to the peculiar curves and spirals of which their tattooing consists<sup>1</sup>; but in his vocabulary at the end of the volume he states: "Moko, mo's, *ubiq.* lizard, reptile," and then, "Moko N.Z., the tattooing, probably from its spiral and curving figures."<sup>2</sup> For this Joest takes him to task, on the ground that the curved lines (*Schlangenlinien*) were of late origin.<sup>3</sup>

## 2. GENERAL DESCRIPTION.

Cook gives <sup>4</sup>but a very short account of the Maories *amoco*, while on the other hand Banks devotes considerable space to its description. His accounts are not only the first, but are also very good, and as such are well worth reproducing. At Poverty Bay he writes<sup>5</sup>: "Their lips were stained with something put under the skin (as in the Otahite *tattow*), and their faces marked with deeply engraved furrows, also coloured black, and formed in regular spirals. Of these the oldest people had much the greatest quantity, and most deeply channelled, in some not less than one-sixteenth part of an inch." On the Thames River,<sup>6</sup> he writes, the people "had a much larger quantity of *amoca* or black stains upon their bodies and faces. They had almost universally a broad spiral on each buttock, and many had their thighs almost entirely black, small lines only being left untouched, so that they looked like striped breeches. In this particular, I mean the use of *amoca*, almost every tribe seems to have a different custom; we have on some days seen canoes where every man was almost covered with it, and at the same time others, where scarcely a man had a spot, except on his lips, which seems to be always essential."<sup>7</sup> Three days later at Taoneroa, he says<sup>8</sup>: "One of the old men here showed us the instrument with which they stain their bodies; it was exactly like that used at Otahite." Banks sums up his descriptions as follows<sup>9</sup>:—"Both sexes stain themselves in the same manner with the colour of black, and somewhat in the same way as the South Sea Islanders, introducing it under the skin by a sharp instrument furnished with many teeth. The men carry this custom to much greater lengths; the women are generally content with having their lips blacked, but sometimes have little patches of black on different parts of the body. The man, on the contrary, seems to add to the quantity every year of his life, so that some of the elders were almost covered with it. Their faces are the most remarkable; on them, by some art unknown to me, they dig furrows a line deep at least, and as broad, the edges of which are often again indented, and absolutely black. This may be done to make them look frightful in war; indeed, it has the effect of making them most enormously ugly—the old ones especially, whose faces are

<sup>1</sup> *Ethnology*, Philadelphia, 1846, 4to, p. 39.

<sup>2</sup> *Op. cit.*, p. 316.

<sup>4</sup> Wharton, p. 219.

<sup>6</sup> *Ibid.*, p. 203.

<sup>8</sup> *Ibid.*, p. 205.

<sup>3</sup> *Op. cit.*, p. 63.

<sup>5</sup> *Op. cit.*, p. 186.

<sup>7</sup> *Ibid.*, p. 204.

<sup>9</sup> *Ibid.*, p. 231.

entirely covered with it. The young, again, often have a small patch on one cheek or over one eye, and those under a certain age (maybe twenty-five or twenty-six) have no more than their lips black. Yet ugly as this certainly looks, it is impossible to avoid admiring the extreme elegance and justness of the figures traced, which on the face are always different spirals, and upon the body generally different figures, resembling somewhat the foliages of old chasing upon gold or silver. All these are finished with a masterly taste and execution, for of a hundred which at first sight would be judged to be exactly the same, no two, on close examination, prove alike, nor do I remember ever to have seen any two alike. Their wild imagination scorns to copy, as appears in almost all their works. In different parts of the coast they varied very much in the quantity and parts of the body on which this *amoca*, as they call it, was placed; but they generally agreed in having the spirals upon the face. I have generally observed that the more populous a country the greater was the quantity of *amoca* used; possibly in populous countries the emulation of bearing pain with fortitude may be carried to greater lengths than where there are fewer people, and consequently fewer examples to encourage. The buttocks, which in the islands [Society Islands] were the principal seat of this ornament, in general here escape untouched; in one place only we saw the contrary.” It is curious that at so early a date it was observed that the methods of marking varied in different parts of the country. Crozet<sup>1</sup> agrees with Banks as regards the face spirals, but he continues: “The designs on the buttocks are always the same; on these parts they trace in equally indelible marks a very neat spiral line, of which the first point is on the centre of the most fleshy part, and successively embraces the whole circumference.” Crozet had, however, not seen so much of the country as Banks. According to Maning,<sup>2</sup> “every man almost without exception is covered with tattooing from the knees to the waist.”

The deep furrows mentioned by Banks seem almost to be peculiar to New Zealand, so that we have in these islands two methods of permanent skin-marking. This is specially mentioned by Yate<sup>3</sup>: “There is a remarkable difference in the tattoo of the New Zealanders, and that of the Navigators’, Fiigee, or Friendly Islanders. In the latter, the skin is but just perforated with a small pointed instrument, and the staining-matter introduced; so that, in passing the hand over the part that has been tattooed, the skin feels as smooth, and the surface as fair, as before the operation took place; whilst in the latter, the incision is very deep, and leaves furrows and ridges so uneven, that in some places, when long enough, it would be possible to lay in a pin, which would be nearly buried in them.” Bidwill<sup>4</sup> also refers to this peculiar difference between the *moko* and *tatu*, but according to him the rump would appear to have been furrowed likewise, for, in

<sup>1</sup> English translation by H. Ling Roth, Lond., 1891, p. 39.

<sup>2</sup> *Old New Zealand*, Lond., 1863, p. 46.

<sup>3</sup> *Account of New Zealand*, Lond., 1835, p. 148.

<sup>4</sup> *Rambles in New Zealand*, Lond., 1841, p. 80.

speaking of the women's *tatu*, he says : "This might be called tattooing in England. It is of the same kind as sailors are so fond of pricking into their arms ; but it is a totally different thing from the elaborate engraving on a New Zealander's face or rump, inasmuch as in one case the skin is cut and remains in the same pattern as the stains, and in the other the marks do not at all affect the smoothness of the skin." As we shall see later on, the difference between *moko* and *tatu* is brought about by the use of different instruments.

### 3. REGULARITY OF LINES.

Several travellers refer to the regularity of the lines of the *moko*. Thus Banks<sup>1</sup> says of a Poverty Bay native : "He was a middle-sized man, tattowed on the face on one cheek only, in spiral lines very regularly formed." Yate<sup>2</sup> reports : "Nothing can exceed the beautiful regularity with which the faces and thighs of the New Zealanders are tattooed ; the volutes are perfect specimens, and the regularity is mechanically correct." While Polack tells us<sup>3</sup> : "The nice exactitude of the lines represented in the *moko* is scarcely to be surpassed, displaying the fancy and taste of the artist." These statements, judged by the results attained on specimens of preserved *mokoed* heads in our museums, are somewhat overdrawn. Taking into consideration the difficulty of operating on an uneven surface of various resistance (according as there is bone near the surface or not), the lines may be considered tolerably regular.

### 4. WOMEN'S TATU.

The *tatu* on the women was not extensive and therefore considerably less than on the men. In Queen Charlotte's Sound in February, 1777, Anderson reported of the women that they "have the puncture only on their lips or a small spot on their chins," which is practically identical with what Banks and Cook<sup>5</sup> said seven years before. Angas<sup>6</sup> and Jno. Savage<sup>7</sup> also speak of the small amount of *tatu* on the women's faces. Rutherford's account<sup>8</sup> is, "that they have a figure tattooed on the chin, resembling a crown turned upside down ; that the inside of their lips is also tattooed, the figures here appearing of a blue colour, and that they have

<sup>1</sup> *Op. cit.*, p. 184.

<sup>2</sup> *Op. cit.*, p. 148.

<sup>3</sup> *Manners and Customs of the New Zealanders*, Lond., 8vo, 2 vols., 1840, II, p. 45.

<sup>4</sup> Cook (Hawkesworth), *Third Voyage*, book I, chapter viii.

<sup>5</sup> *Op. cit.*, p. 219.

<sup>6</sup> *Savage Life*, Lond., 1850, I, p. 316.

<sup>7</sup> *New Zealand*, Lond., 1807, p. 48.

<sup>8</sup> p. 144. The account of Rutherford's adventures is incorporated in the well known little work entitled *The New Zealanders* (Lond., 1830, 12mo), now said to have been written by Professor G. L. Craik. Rutherford fell among the Maories in 1816. Archdeacon Williams (*Trans. N.Z. Inst.*, XXIII, 1890, p. 460) throws doubt on Rutherford's story, apparently because he, the Archdeacon, is unable to trace any vessel named *Agnes* from which Rutherford states he was captured. It is not at all improbable that Rutherford was a runaway sailor, and if so, he would naturally try to hide the manner of his flight, but that is not sufficient to invalidate the correctness of his story.

also a mark on each side of the mouth resembling a candlestick, as well as two stripes about an inch long on the forehead, and one on each side of the nose." Bidwill, writing in 1838,<sup>1</sup> reports that he saw a woman "tattooed behind like the men. It is a very rare thing for women to be tattooed anywhere but about the lips and chins, and this was quite a curiosity. I used to think it rather ornamental in the men; what its use can be in a woman I cannot imagine, as they are always covered. The women are often quite covered with blue marks. . . . I have seen the arms and bodies of the New Zealand women so covered with these powerful blue marks, that they looked as if they had on them a tight-fitting chintz dress." At Banks Peninsula, Shortland<sup>2</sup> gives a description of a funnily tatued woman: "One half of her face was tattooed in every respect like that of a man, while the other had no more marks than her sex entitled her to; so that two persons, who stood opposite each other, each viewing a different side of the face in profile, while she, perhaps, sat wrapped in her blanket, with a pipe in her mouth, would have pronounced the object to be a man or a woman, according to the circumstance of his position. I afterwards met with several other old women of this tribe, who had similarly engraved on their faces many of the marks, which in the north island I had never seen but on males." However, he adds<sup>3</sup>: "The women have usually merely the lines on the lips, and a scroll depending from the angles of the mouth, the fine blue lines, or scratches, which are often to be seen on their cheeks, arms, and breasts, being the offspring of each person's fancy." According to Dieffenbach<sup>4</sup>: "The girls, as soon as they arrive at puberty, have their lips tattooed with horizontal lines; to have red lips is a great reproach to a woman. With females, in many cases, the operation ceases here, but more frequently the chin is tattooed, especially in the Waikato tribe, and the space between the eyebrows, much resembling the tattoo of the modern Egyptians. In some rare cases it extends over the angles of the mouth. I have, indeed, seen a woman whose whole face was tattooed." From this it would appear that in woman the tatu was a sign of marriageableness, and in fact Colenso<sup>5</sup> affirms this to be the case. He says to have a husband a woman must have the lips tatued, as red lips are abhorred and black ones considered the perfection of feminine beauty: "In the female it was confined to the lids, chin, between the eyes, and a little up the forehead, and on the back part of the leg from the heel to the calf; the three last-mentioned being always indicative of rank. The women, also, often got themselves irregularly marked on the hands, arms, breasts, and face with small crosses, short lines, and dots. A very few women the writer has seen with tattooed faces just as a man; these belong to southern tribes, some of whom had a very different style of tattooing (such as is shown in *Cook's Voyages*, plate 13,

<sup>1</sup> *New Zealand*, Lond., 1807, p. 80.

<sup>2</sup> *Southern Districts of New Zealand*, Lond., 8vo, 1851, p. 16.

<sup>3</sup> *Ibid.*, p. 18.

<sup>4</sup> *Travels in New Zealand*, Lond., 8vo, 2 vols., 1843, II, p. 35.

<sup>5</sup> *Trans. N.Z. Inst.*, I, 2nd edition, 1873, p. 356.

4to ed.).” This leg tatooing was observed by Kerry Nicholls<sup>1</sup> among the Tapur-yacharuru women, who “follow the peculiar custom, which I have not seen elsewhere, of tattooing the legs as well as the lips in thin cross lines of a dark blue colour.” It is also mentioned by Angas: “In a very few instances I have observed women, whose ankles, from the heel upwards, have been tattooed with ornamental spiral lines.”<sup>2</sup> There was also some body tatooing or perhaps moko on the women, for D’Urville relates<sup>3</sup> that “Tuao showed me his wife, who was being further mokoed on her shoulders. One half of her back was already furrowed with deep designs similar to those which ornamented the face of the parents of Koro Koro, and a slave was decorating the other half in the same style.” Women evidently considered it essential to be tatooed, for, as Darwin relates,<sup>4</sup> at Waimata “the wives of the missionaries tried to persuade them [the women] not to be tattooed; but a famous operator having arrived from the south, they said, ‘We really must just have a few lines on our lips; else when we grow old our lips will shrivel, and we shall be so very ugly.’” This reminds one of the papeeta or white face mentioned by Taylor. According to De Blosseville the women of the southern portions of New Zealand looked upon tatooing as a prerogative of nobility.<sup>5</sup> Scherzer<sup>6</sup> gives some stanzas of a song showing that a red-lipped and therefore untatooed woman was considered ugly. With regard to Bidwill’s account of body tatooing we may here quote Taylor,<sup>7</sup> who says: “The ladies had their lips and chins operated upon, with a little curl at the corner of the eye. Frequently their persons also were covered with small strokes of tattooing; these might be called beauty patches, such as the ladies used to wear on the face made of a bit of court plaster, which were once thought ornamental.” Is Taylor referring to the *tangi*, as does Angas<sup>8</sup> when he says: “With the women the tattooing of the face only extends to the lips and chin; but they disfigure their breasts and arms with blue lines, which are the marks of their *tangi*, or lamentations for their deceased relations. These incisions frequently run in parallel lines, about a couple of inches in length, and are cut with sharp shells, and dyed, in a similar manner to the lines upon the face, with a mixture of carbonised Kauri resin.” Have the blue marks covering the women’s body, mentioned by Bidwill, anything to do with *tangi*, or has the *tangi* been at the bottom of the whole system of Maori tatoo and moko?

##### 5. DEPILATION OF BEARD.

“To set off the *moko* to advantage, it was necessary to give up the beard, which was not considered in the light of an ornament. In former days, a pair of mussel shells were generally employed, but since their acquaintance with Europeans, a pair of large tweezers, an inch and a half wide, and three or four inches long, will

<sup>1</sup> *King Country*, Lond., 1884, p. 137.

<sup>2</sup> *Op. cit.*, I, p. 316.

<sup>3</sup> *Astrolabe*, II, p. 450.

<sup>4</sup> *Journal*, Lond., 1839, p. 509.

<sup>5</sup> *Astrolabe*, III, p. 693.

<sup>6</sup> *Voyage of the “Novara,”* Lond., 1860, III, p. 113.

<sup>7</sup> *Op. cit.*, p. 150.

<sup>8</sup> *Op. cit.*, I, p. 316.

generally be seen hanging from the garment or neck ; and whenever the gentleman can find no other employment, he will occupy himself with them.”<sup>1</sup> Kerry Nicholls also mentions that depilation was practised before tatooing, and Robley relates that in 1864–66 he “ took several sketches of natives showing moko on the face with hair, for though the practice of moko was then fairly vigorous, yet the growth of beard and moustache was common among the natives, with the exception of the older men. The older men being well tattooed never used to wear hair on the face.”<sup>2</sup> Cruise, who published his book in 1823, gives a portrait of the chief Tetoro, whose face is fully tatooed with a full-grown beard.

## 6. INSTRUMENTS USED.

When Banks says, as we have seen above, that he was shown a tatooing instrument and that it was exactly like that in use in Otahite, he was obviously unaware that the Maories used a variety of instruments, and also that to obtain the deep furrows described quite a different instrument was necessary from the one provided with a series of sharp points or teeth. Our first authority for a description of this special instrument is John Rutherford. He describes it as “ made of bone, having a sharp edge like a chisel and shaped in the fashion of a garden hoe.”<sup>3</sup> He adds<sup>4</sup>: “ They employed, however, various instruments in the course of the operation, one which they sometimes used being made of a shark’s tooth, and another having teeth like a saw. They had them also of different sizes to suit the different parts of the work.” Marsden,<sup>5</sup> writing in 1819, says the operation “ was performed with a small chisel made of the wing-bone of a pigeon or wild fowl. This chisel was about a quarter of an inch broad, and was fixed in a handle, four inches long, so as to form an acute angle at the head ; something like a little pick, with one end.” Next we have Cruise,<sup>6</sup> who tells us: “ The point of the tattooing chisel was about half a quarter of an inch wide ; it was made of the wing-bone of an albatross, and fastened in a transverse wooden handle. . . . As the lines of the amoco become contracted, a narrower instrument was used.” D’Urville,<sup>7</sup> writing in 1827, tells us : “ The instrument is composed of the bone of an albatross set at right angles to a small wooden handle 3 or 4 inches long, having the shape of a veterinary’s lancet. The bone has sometimes simply a cutting edge, at other times flattened and furnished with several sharp teeth like a comb.” Yate, writing eleven years after Cruise, merely refers<sup>8</sup> to the instrument as a “ small chisel of very rough workmanship.” But he also tells us<sup>9</sup> an interesting fact : “ At the southward, when you come as far as Waiapu, or the East Cape, you find the cuts much deeper on the nose and forehead, and in all parts of the face much broader. The reason they assign for this is that theirs

<sup>1</sup> Taylor, *op. cit.*, p. 151.

<sup>2</sup> *Moko*, Lond., 4to, 1890, p. 30.

<sup>3</sup> *Op. cit.*, p. 135.

<sup>4</sup> *Ibid.*, p. 136.

<sup>5</sup> *Missionary Register*, Lond., 1822, p. 252.

<sup>7</sup> *Op. cit.*, II, p. 448.

<sup>6</sup> *Journ.*, 2nd edition, Lond., 1824, p. 136.

<sup>8</sup> *Ibid.*, p. 151.

<sup>8</sup> *Op. cit.*, p. 149.

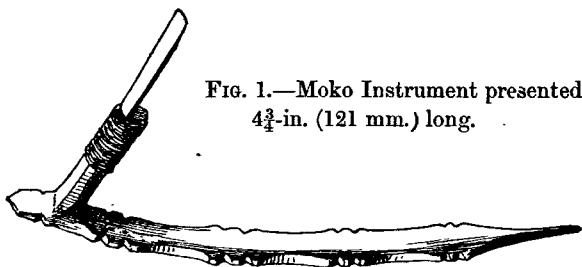
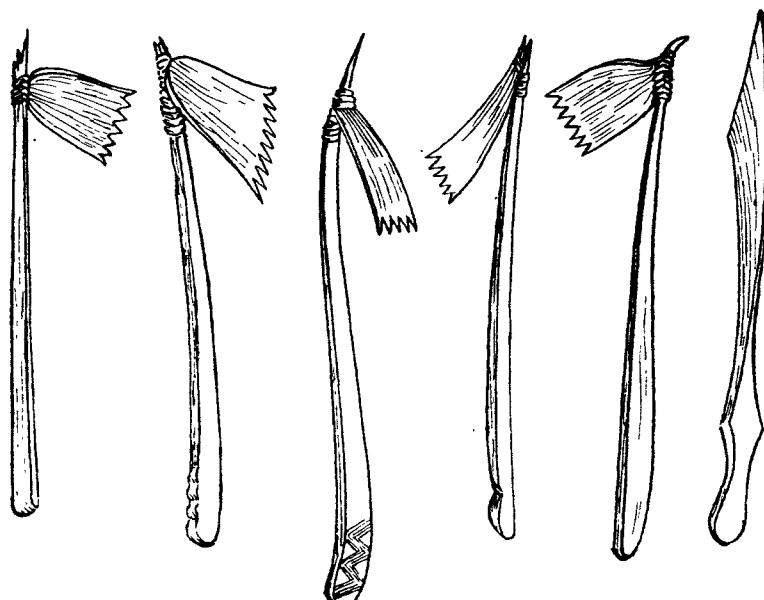
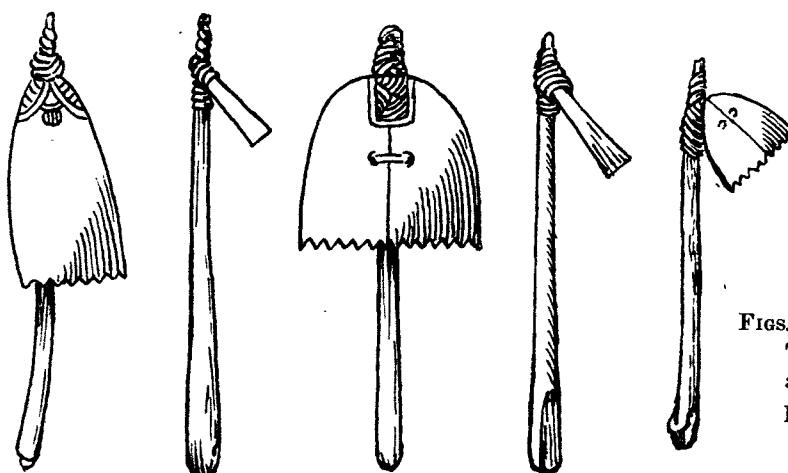


FIG. 1.—Moko Instrument presented to Brit. Mus. by Sir Geo. Grey, 1854, 4½-in. (121 mm.) long.



FIGS. 2-7.—Maori Tatoo Instruments, after Craik (New Zealanders). They bear a close resemblance to those from Tahiti (see Banks' remarks above). Compare Fig. 7 with the mallets Figs. 14 and 16.



FIGS. 8-12.—Moko and Tatoo Instruments after Polack (I, p. 45).

are purely native instruments, made of stone; whilst the Bay-of-Islanders have latterly introduced iron, which is capable of being made much sharper, and consequently of inflicting a wound without striking so hard a blow, or causing so deep or broad a furrow.” Polack, who was in New Zealand from 1831 to 1837,<sup>1</sup> says the instrument is formed of bone or hard wood, fashioned like a chisel.” Farther on<sup>2</sup> he depicts five instruments; two are chisel adzes, while three are toothed adzes similar to instruments used in Tahiti, etc. Shortland, writing in 1843–4 near Banks Peninsula, merely refers to the instrument as “a very small chisel”<sup>3</sup>; while Dieffenbach<sup>4</sup> appears to be the first to give the native name of the instrument, describing it as “the sharp bone of a bird,” or “a small chisel called *uhī*.” As a last authority we may quote Taylor, who, when he had been about fifteen years in New Zealand, wrote: “The *uhī* or instrument used was a small chisel made of the bone of an albatross, very narrow and sharp.”

It is curious that not one of the above writers, excepting Banks and Rutherford, refers to the instruments provided with pricks for making real tatu similarly to that in vogue elsewhere in the Pacific. It is very curious that all these writers refer to the instrument as a chisel, and while one can hardly suppose that the earlier writers copied one from another, yet one cannot but think that the later writers had in their minds what the earlier ones had written, for with the exception of the vertical cutting portion (*i.e.*, vertical when in operation), the instrument does not look like a chisel at all nor is it held like a chisel, although, on the other hand, it is driven like a chisel. To compare the instrument with a garden hoe (in miniature, of course), as Rutherford does, or to a model of an adze would be more correct than comparing it to a chisel. The only reason for calling it a chisel is that another tool, the mallet, was necessary for using it. A chisel has not a series of sharp points. With regard to Yate’s statement as to the introduction of iron Robley remarks<sup>5</sup>: “When iron tools were introduced much finer work became possible than with the bone or tooth instruments”; but he adds: “In the earliest days chisel work was the only method employed in tatooing; but later on, the system of pricking was introduced, and allowed the artist far more scope for his elaboration of detail.” Whether the introduction of iron tools would make finer work possible would depend largely upon the fineness of the iron tool, and as to the priority of introduction of either the chisel or the pricker, this would not be easy to prove. The earliest describers, Banks and Crozet, mention practically both tatu and amoko, for Banks speaks of the pricking instruments, which, however, do not make the tatu, and of the furrows (*moko*), which are, however, not made by the prickers, and Crozet speaks of the engraved faces made by means of pricking! If the Maories brought with them the tatooing from the east they had prickers in all probability, and as the art developed their vain desire to show how they could bear pain might have been the cause of the introduction of a more

<sup>1</sup> *Journ.*, 2nd edition, Lond., 1824, II, p. 44.

<sup>2</sup> *Ibid.*, II, p. 45.

<sup>3</sup> *Op. cit.*, p. 18.

<sup>4</sup> *Op. cit.*, II, p. 33.

<sup>5</sup> *Op. cit.*, p. 50.

lacerating instrument—that is, if the chisel cause more agony than the pricker. If, on the other hand, *tatu* developed from *moko*, which developed from *tangi*, the possibility of which was suggested on p. 34, then Robley would be correct.

#### 7. AGE AT COMMENCEMENT OF OPERATION.

As mentioned above by Cruise,<sup>1</sup> the young men were commenced to be operated upon at about twenty years of age.

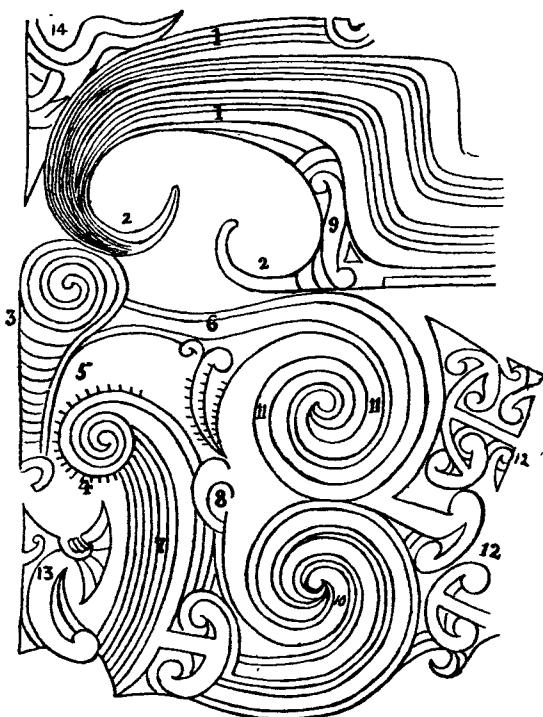


FIG. 13.—Moko pattern from Banks' Peninsula, after Shortland, to show nomenclature. In the original No. 10 is not placed so I have indicated it according to Dieffenbach's description "on the lower maxilla where the masseter lies." For explanation, see p. 64.

Polack merely states<sup>2</sup> it was "at an early age." In Middle Island "the people submit to this operation at a much earlier age; and many of them are fully tattooed about the face before they have arrived near the prime of life."<sup>3</sup> Sir Walter Buller, however, told Robley<sup>4</sup> that it was the universal rule amongst Maories never to commence *moko* until a subject was adult, and that, as a matter of fact, he had never seen a Maori boy or girl with a *tatooed* face. In commencing the operation "the first attempt is applied to the lips, then the forehead, cheeks, etc., are submitted to the same process."<sup>5</sup> "There were regular rules for tattooing, and the artist always went systematically to work, beginning at one spot and gradually proceeding to another, each particular part having its distinguishing name."<sup>6</sup> Taylor gives a list of nineteen such names, Dieffenbach seventeen, and Shortland twelve such names from Middle Island; the names are

me about them: "Names like *ngu*, *wero*, *repa*, seem to suggest that the patterns were named from animals, or else merely descriptive of their location, as *pu-karu*, *pu-taringa*, *kauwae*, etc."

<sup>1</sup> *Journ.*, 2nd edition, Lond., 1824, p. 264.

<sup>2</sup> Yate, *op. cit.*, p. 151.

<sup>3</sup> Polack, *op. cit.*, p. 144.

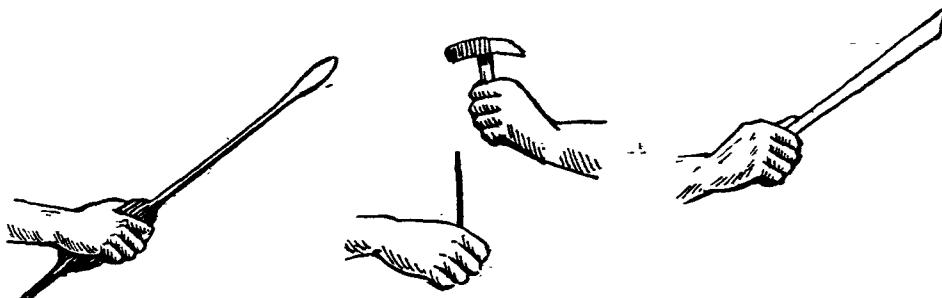
<sup>4</sup> *Op. cit.*, p. 45.

<sup>5</sup> *Op. cit.*, p. 38.

<sup>6</sup> Taylor, *op. cit.*, p. 153

## 8. THE OPERATOR.

Earle describes a professor of *tatuing* as follows<sup>1</sup>: "He was considered by his countrymen a perfect master in the art of tattooing, and men of the highest rank and importance were in the habit of travelling long journeys in order to put their skins under his skilful hands. . . . This 'professor' was merely a *Kooky* or slave, but by skill and industry he raised himself to an equality with the greatest men of the country." He seems to have been handsomely paid. According to Yate<sup>2</sup>: "There are persons in New Zealand whose time is principally occupied in



Figs. 14, 15, 16.—Mallets and methods of holding them. Fig. 14 after Earle; there appears to be some cloth wrapped round the handle to give it a firmer grip; in shape it is very like a Tahitian mallet illustrated by Parkinson. Fig. 15 after Polack; the woodcut is very poor and does not show the pricker; the mallet is of European form. Fig. 16 after Robley.

performing this painful operation. They go about from village to village for the purpose, and are most amply rewarded for their services." "The natives of the East Cape are accounted as particularly clever in this art, and when slaves have been acquainted with it, their advancement from bondage has been immediate."<sup>3</sup> Referring to a youth being *tatued*, Dieffenbach<sup>4</sup> says: "The *Tohunga* (priest) is charged with this function; but it is not everyone that is able to perform the operation. Some of the chief masters of the art are slaves, and the Waikato tribe are celebrated for their skill in the perfection of the designs." According to Angas<sup>5</sup>: "The *Tohunga*, or priest, is most generally the operator in the ceremony of tattooing, he being supposed to excel in the art of carving both on wood and on flesh." But, strange to say, according to Savage<sup>6</sup> these *tohunga* themselves "have only a square patch of tattooing over the right eye."

## 9. POSITION OF PATIENT.

Rutherford and his companions, when operated upon, were held down by five or six men each, and appeared to have two operators each, but then theirs was probably an exceptional case, the Maories not knowing how the Europeans would

<sup>1</sup> *Narr. of Nine Months' Residence in N.Z. in 1827*, Lond., 8vo, 1832, pp. 137–8.

<sup>2</sup> *Op. cit.*, p. 149.

<sup>3</sup> Polack, *op. cit.*, II, p. 50.

<sup>4</sup> *Op. cit.*, II, p. 33.

<sup>5</sup> *Op. cit.*, p. 314.

<sup>6</sup> *Op. cit.*, p. 47.

take to the operation. According to Yate: "When anyone is desirous of being tattooed, he lies down, with his head between the legs of the operator, and his feet against something firm, for the purpose of pressure. The lines upon his face are then traced out with a piece of charcoal; these marks are, however, soon effaced by the streams of blood flowing from the wounds." Cruise thus describes the preparations of a native about to be *mokoed*: "He lay upon his back, with his head resting upon the knees of the operator, who sat upon the ground, and for whose guidance the intended form of the *amoco* had been previously traced in black lines upon the patient's face."<sup>1</sup> Polack's testimony is similar.<sup>2</sup> "The head of the patient rests for convenience on the knees of the artist. The pattern about to be



FIG. 17.—The moko professional, Aranghie, at work. After Earle.

engraved is painted in lines, by a small piece of stick dipped in powdered charcoal and water." According to Savage<sup>3</sup> the device was marked out with a piece of burnt stick or red earth. D'Urville<sup>4</sup> speaks of a preparatory design. "The pattern was first drawn either with charcoal or scratched in with a sharp-pointed instrument," says Taylor,<sup>5</sup> and he continues: "The person operated upon was stretched all his length on the ground, and to encourage him manfully to endure the pain, songs were continually sung to him. . . . This song was chiefly to remind the gentleman of the duty he owed to the operator, who, not having any regular professional charges, chiefly depended on the liberality of his patient, who

<sup>1</sup> *Op. cit.*, p. 136.

<sup>2</sup> *Op. cit.*, II, p. 44.

<sup>3</sup> *Op. cit.*, p. 46.

<sup>4</sup> *Op. cit.*, II, p. 448.

<sup>5</sup> *Op. cit.*, p. 152.

was expected not only to feed him with the best, but to make him a very handsome present as well. And when the operator suspected that he should not be remembered, he frequently became very careless in his work, and rendered the person an object for life. Some of the *mokos* are very coarsely done, whilst others are finished with an artist's touch, by which we are able to judge of the way they have severally paid the owner of the sounding chisel." As mentioned above, however, the coarseness and fineness depended much upon the tools used. Earle gives an illustration of a patient lying comfortably on the ground leaning on one elbow, while his thigh is being tatooed. Polack<sup>1</sup> illustrates a patient with his head similarly on the operator's lap, and Robley<sup>2</sup> shows a very like group. When D'Urville<sup>3</sup> went to see the shoulder *mokoing* of Tuao's wife she was lying on her belly.

#### 10. THE OPERATION.

The flow of blood, naturally very great, the operators "kept wiping off with the side of the hand, in order to see if the impression was sufficiently clear. When it was not they applied the bone a second time to the same place."<sup>4</sup> During the operation on Rutherford, Aimy's (the chief's) eldest daughter several times wiped the blood from his face with some dressed flax. According to Marsden:<sup>5</sup> "One end of this stick (*whi*) was cut flat like a knife, to scrape off the blood as it gushed from the cuts;" while, according to Yate,<sup>6</sup> "the blood is constantly wiped away with a little dressed flax, tied upon the forefinger of the left hand." Sometimes the puncturer carefully wipes away the blood with a "piece of scraped flax or the end of his garment."<sup>7</sup> "One can understand," writes D'Urville,<sup>8</sup> "that blood must flow in abundance, but the operator takes care to wipe it off with the back of his hand or with a small wooden spatula. According as the skin is gashed the colour or the *moko* is introduced into the cut by means of a small brush." But the brush was of course a European innovation. There were thus different methods in use to get the pigment inserted into the skin or flesh. When Rutherford was *mokoed* the instrument was dipped into the liquid, and then applied; Marsden, Cruise, Yate, and Dieffenbach all speak of this dipping; but Polack<sup>9</sup> says: "Charcoal is afterwards [i.e., after the striking] powdered and let into the wounds;" while, according to Taylor:<sup>10</sup> "The operator held in his hand a piece of *muka* (flax) dipped in the pigment, which he drew over the incision immediately it was made." Angas<sup>11</sup> likewise says the charcoal was rubbed in after the pricking had brought forth blood. All accounts agree as to the method of holding the *moko* instrument in the one hand while it was struck "with a small piece of wood"<sup>12</sup> or "with a stick about one foot long, in the same manner as a

<sup>1</sup> Polack, II, p. 43.

<sup>2</sup> *Op. cit.*, p. 51.

<sup>3</sup> *Op. cit.*, II, p. 451.

<sup>4</sup> Rutherford, *op. cit.*, p. 135.

<sup>5</sup> *Op. cit.*, p. 251.

<sup>6</sup> *Op. cit.*, p. 149.

<sup>7</sup> Polack, *op. cit.*, II, p. 44.

<sup>8</sup> *Op. cit.*, II, p. 448.

<sup>9</sup> *Op. cit.*, II, p. 44.

<sup>10</sup> *Op. cit.*, p. 151.

<sup>11</sup> *Op. cit.*, p. 316.

<sup>12</sup> Rutherford, *op. cit.*, p. 135.

farrier opens the vein of a horse with a fleam,”<sup>1</sup> or “a bit of stick not longer than a common pencil,”<sup>2</sup> or “a light tap is given it with a small mallet, *mahoe*.”<sup>3</sup> Dieffenbach, however, says the chisel was driven into the skin by the hand.<sup>4</sup> The tapping makes the tool cut into the flesh as a knife would do,<sup>5</sup> or in the words of Marsden,<sup>6</sup> “the chisel appeared to pass through the skin at every stroke, and cut it as a carver cuts a piece of wood.” Polack<sup>7</sup> merely says the tool cuts deep into the flesh; and D’Urville tells us: “The instrument is applied against the skin, and struck with a small stick on the back of the chisel to make it penetrate into the epidermis, and to gash sufficiently in following the prepared design”<sup>8</sup>; while Taylor makes the following extraordinary statement, namely, that the tool is driven “quite through the skin, and sometimes completely through the cheek as well, so that when the person undergoing the operation took his pipe, the smoke found its way out through the cuttings.”<sup>9</sup>

#### 11. PIGMENT EMPLOYED.

There is considerable difference in the records as regards the material of the pigment used. When Rutherford was mokoed, a piece of charcoal was rubbed upon a stone with a little water until a thickish liquid had been produced.<sup>10</sup> According to Marsden<sup>11</sup> “the liquid was made from a particular tree, and afterwards mixed with water, which communicates the blackness”; Cruise speaks<sup>12</sup> “only of charcoal and water”; according to Yate<sup>13</sup> the pigment “is merely the root of the flax burnt to charcoal, reduced to powder and mixed with water”; according to Dieffenbach<sup>14</sup> the pigment, called *narahu*, is prepared by carbonising the resin of the Kauri pine. Gunpowder appears to have been substituted in Polack’s time.<sup>15</sup> Colenso<sup>16</sup> says: “For the purposes of tattooing they used various kinds of charcoal, both animal and vegetable, obtained from several peculiar sources, and manufactured in a highly curious manner with much labour and skill,” the peculiar sources being described by Taylor as follows<sup>17</sup>: “The substance generally used as colouring matter is the resin of the *kauri* or *rimu*, which, when burnt, is pounded and converted to a fine powder. At Taupo, I went to see the place where this pigment was manufactured. A narrow pit was sunk at a little distance from a precipice, and from the face of the cliff a passage was cut to the bottom of it, over the mouth of which pieces of wood containing the resin were burnt, and the residuum, falling within, was taken away by means of the passage.” Scherzer’s description gives us

<sup>1</sup> Marsden, *op. cit.*, p. 251.

<sup>2</sup> Cruise, *op. cit.*, p. 136.

<sup>3</sup> Yate, *op. cit.*, p. 149 and Taylor, *op. cit.*, p. 151.

<sup>4</sup> *Op. cit.*, II, p. 33.

<sup>5</sup> Rutherford, *op. cit.*, p. 135.

<sup>6</sup> *Op. cit.*, p. 251.

<sup>7</sup> Polack, *op. cit.*, II, p. 44.

<sup>8</sup> D’Urville, *op. cit.*, II, p. 448.

<sup>9</sup> *Op. cit.*, p. 151.

<sup>10</sup> *Op. cit.*, p. 135.

<sup>11</sup> *Op. cit.*, p. 252.

<sup>12</sup> *Op. cit.*, p. 136.

<sup>12</sup> *Op. cit.*

<sup>13</sup> *Op. cit.*, p. 34.

<sup>14</sup> *Op. cit.*, II, p. 44.

<sup>15</sup> *Trans. N.Z. Inst.*, XIV, 1881, p. 61.

<sup>17</sup> *Op. cit.*, p. 151.

another method of preparation<sup>1</sup>: "The necessary colouring stuff, *ngarahu*, is made from the soot of the wood, when burnt, of the Kauri fir (*Dammara Australis*), which is collected in the leaves of the Ti-reed (*Cordyline Australis*), and is prepared with an infusion of the bark of the Hinau (*Elaeocarpus Hinau*) in the form of small cones." Edge-Partington,<sup>2</sup> in describing the pumice stone boxes in which the pigment was kept, says: "The pigment was a mixture of lampblack and either milk or fat. A dog starved for the purpose was fed upon this. His excreta were re-mixed and buried in these boxes until wanted." Mr. Chas. Smith Wangauni was his informant.

## 12. PAIN AND SWELLING.

We can well believe Rutherford when he says the pain was very acute; but he says he neither moved nor uttered a sound, while his comrades moaned dreadfully.<sup>3</sup> Cruise tells us<sup>4</sup> that the pain was borne by the natives "with surprising fortitude" and "with perfect composure." Marsden,<sup>5</sup> Yate,<sup>6</sup> Cruise,<sup>7</sup> and Polack<sup>8</sup> ascribe the incompleteness of the mokoing to the intense pain and inflammation, which necessitate considerable intervals of repose. Rutherford, who was four hours under the operation, was, in consequence, blind for three days, and did not wholly recover for six weeks, while Marsden observed<sup>9</sup> "proud-flesh rising in some parts which had been cut almost a month before." According to Dieffenbach<sup>10</sup>: "The persons operated upon never allow the slightest expression of pain to escape them. . . . The tattooing of the lips is the most painful part of the operation." And Polack says<sup>11</sup>: "The victim to this curious fashion lies recumbent, wincing and writhing at every stroke given by the operator, the body quivering under the torments inflicted." "Tuao's wife seemed to suffer very much, and the blood streamed abundantly from her wounds; nevertheless she did not even sigh, merely looked at me with a smile without disturbing herself or the woman carrying out the important operation."<sup>12</sup> "To tattoo a person fully is therefore a work of time, and to attempt to do too much at once endangered the life. I remember a poor *porangi*, or insane person, who, during the war, was tattooed most unmercifully by some young scoundrels. The poor man's wounds were so dreadfully inflamed that they occasioned his death."<sup>13</sup>

## 13. TABU.

When Rutherford and his comrades were mokoed they were tabued also.<sup>14</sup> "During the time that anyone was being tattooed, all persons in the *pa* were *tapu*,

<sup>1</sup> *Trans. N.Z. Inst.*, XIV, 1881, II, p. 111.

<sup>2</sup> Album, Series III, No. 173.

<sup>3</sup> It may in a considerable measure have been due to his hardiness that Rutherford was the only one of the European party who ultimately escaped from the Maories.

<sup>4</sup> *Op. cit.*, pp. 136, 264.

<sup>5</sup> *Op. cit.*, p. 252.

<sup>6</sup> *Op. cit.*, p. 149.

<sup>7</sup> *Op. cit.*, p. 264.

<sup>8</sup> *Op. cit.*, II, p. 45.

<sup>9</sup> *Op. cit.*, p. 252.

<sup>10</sup> *Op. cit.*, II, p. 34.

<sup>11</sup> *Op. cit.*, II, p. 43.

<sup>12</sup> D'Urville, *Op. cit.*, III, p. 451.

<sup>13</sup> Taylor, *op. cit.*, p. 142.

<sup>14</sup> *Op. cit.*, p. 137.

until the termination of the work, lest any evil should befall them.”<sup>1</sup> Best tells us of the Tuhoe or Urewera tribe<sup>2</sup>: “When the daughter of an important chief had her lips and chin tatooed, a day was set apart on which the tribe would assemble to view the work of the artist. A party would be sent forth some time before to secure a member of another tribe ‘for sacrifice and to give strength to the tribe by eating.’” Earle remarks<sup>3</sup> on this tabu that one evening strolling through a village where many chiefs were being mokoed, “it appeared as though some dreadful disease had suddenly struck the greater part of the inhabitants and deprived them of the use of their limbs,” for being all “under the law, they could not feed themselves with their hands.” Many museums possess one or more specimens of the funnel by which men were fed when undergoing the operation of moko.

#### 14. POST-MORTEM MOKO.

I have not been able to trace any reference to post-mortem tatooing by any early traveller in New Zealand, although it is hardly likely that its occurrence should not be recorded somewhere. In so far as my studies have carried me, the first mention of it at all was made by Garrick Mallory,<sup>4</sup> where, describing two New Zealand preserved heads, he remarks: “Whether any mechanical work was performed upon the heads after death is not positively known, though from the general appearance of the work it would be suggested that the sharp creases or grooves was [sic] done subsequent to the death of the individual.” It must be remembered, however, that Banks noticed the grooves on the living in 1769. Robley gives a good many illustrations of post-mortem moko and says<sup>5</sup>: “Post-mortem moko is easily distinguished by the non-appearance of the subcutaneous colour, and where moko was incomplete at the time of death the pattern was often added to. But the difference of the cuts on the live and on the hardened flesh is easily recognised. Again, sometimes the pattern scored in life has been recut deeper into the leathery surface after death. These new marks on the old lines are also readily distinguished. In one of the British Museum specimens this post-mortem tracing is of a totally different pattern from that cut during life, and this is the more regrettable as the original pattern was not only good and complete and well preserved, but the new one is carelessly worked or scratched, and looks pale over the blue of the older and real moko.” In answer to my inquiries General Robley informs me: “There are heads that were tatooed in life, and then these real lines with subcutaneous colour in them which need not have been touched were incised to make patterns appear deep as in life, for the stretched and dried skin would cause the grooves to flatten out.” While in some cases the post-mortem cuts are clearly distinguishable in the leathery surface, in other cases where they are not cut so deep it is not easy to distinguish them, and

<sup>1</sup> Taylor, *op. cit.*, p. 152.

<sup>2</sup> *Trans. N.Z. Inst.*, XXX, 1897, p. 38.

<sup>3</sup> *Op. cit.*, pp. 144–5.

<sup>4</sup> *Fourth Annual Report*, Bureau of Ethnology, Washington, p. 76.

<sup>5</sup> *Op. cit.*, p. 189.

when all is said the examination can only be a superficial one and therefore not wholly reliable.

To make an attempt to get the question settled whether there was any post-mortem moko, with the kind permission of Professor Chas. Stewart, I asked Mr. Samuel G. Shattock, the pathological curator of the Museum of the Royal College of Surgeons and Joint Lecturer on Pathology and Bacteriology at St. Thomas's Medical School, London, to examine what appeared to be post-mortem moko on a portion of the skin of the forehead of a New Zealander's head (No. 1010) in the Museum. Mr. Shattock reports as follows:—

“With the object of endeavouring to determine whether the moko in this

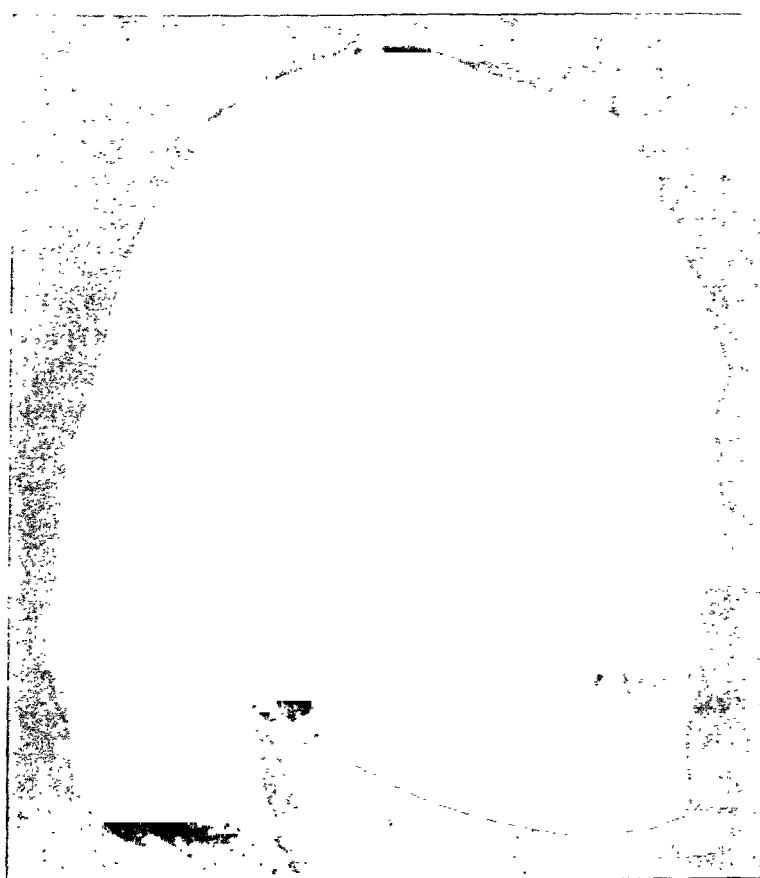


FIG. 18.—Maori head in Museum Royal College of Surgeons (No. 1010), showing *post-mortem* clear incised work overlapping original moko. Mr. Shattock's examination was made from this specimen.

region had been done after death, a microscopic examination was made of a portion of the skin by means of sections cut at right angles to the direction of one of the gaping sharply edged incisions. The dried skin was first soaked in water and afterwards passed through increasing strengths of alcohol; the sections were cut upon a freezing microtome and stained with Ehrlich's Haemataxylin and eosin. In

these sections all the chief structures of the skin are easily recognisable; the epidermis, however, is wanting.

“On either edge of the incision the fibrous bundles of the corium terminate quite abruptly; there is no trace whatever of repair in the form of exudation or granulation-tissue. Blood has escaped into the incision, and the extravasation extends a considerable distance laterally between the bundles of fibrous tissue, and even amongst the cells of fat.

“Is the amount of extravasation compatible with a post-mortem moko, or does it prove that the process was carried out during life? In order to test this question I made the following observations:—Dec. 2, 1899; weather mild. I lightly struck a sharp chisel, a quarter of an inch broad, into the scalp (a little way above the ear) of a well-developed man who had died sixteen hours previously. The scalp and parts about the neck were congested. Blood at once oozed freely out of the wound and continued to do so. I pressed and manipulated the parts without using violence, and then excised the piece with the incision in its centre, pinned it on filter paper and allowed it to dry in a warm room. When dry it was placed in alcohol, and some days afterwards cut and stained as in the other case.

“In another body in which there was no visible congestion I made a similar injury in the same position. Blood welled up from the wound, but did not flow out to the same extent as in the first case. Such injuries when made over the malleoli gave exit to no blood, even on pressing the parts. The differences in result depend obviously upon the amount of blood in the tissue selected.

“Microscopic examination of the post-mortem injury made in case 1: There is a zone of blood in the course of the incision, and blood has been displaced laterally between the bundles of fibrous tissue, in places for a considerable distance, as well as between the fat cells, the entire result being precisely like that in the moko.

“The microscopic examination of the New Zealander’s wound shows quite clearly that it has been produced by a sharp chisel-like instrument, and not by a series of punctures. No artificial colouring matter was detectable either on the faces of the incision or between the divided bundles of fibre. There is no sign of any inflammation having taken place.

“The conclusions arrived at are: The absence of histological changes, whether of active inflammation or repair, in the section of the Maori skin shows that the moko must have been done either shortly before or after death. But against the first supposition is the wide extent of that part of the moko having the same naked eye characters as the piece selected for examination, and obviously done at one and the same time. It is too extensive to have been carried out at a single sitting, covering as it does the whole of the forehead and both the malar regions, and it may be safely concluded therefore that it was done after death.”

Mr. Shattock’s opinion may be confirmed by the probability that if the

moko had been done before death colouring matter would have been inserted as usual. That the operation was done soon after death is also probable, as at that period the skin would be easier to operate upon than later, when the head would have hardened under the process of preservation.

### 15. RENEWAL OF MOKO.

"Tatuing by the Maori is renewed occasionally, as the lines become fainter by time, to the latest period of his life. Tetoro, who returned to New Zealand in the *Dromedary*, was re-tattooed soon after his arrival."<sup>1</sup> Polack<sup>2</sup> also says: "After a series of years, some chiefs have had the courage and patience to be retouched and renovated." But as to D'Urville's statement<sup>3</sup> that Cook mentions repeated tatuiings, I have not been able to trace this remark in that discoverer's records.

### 16. THE OBJECT OF TATU AND MOKO.

Marsden,<sup>4</sup> referring to an agreement regarding the alienation of some land at Ranghee Ho in February, 1815, says: "The chief has signed the grant in a manner extremely curious and perfectly original. He has displayed the ingenuity which is characteristic of his countrymen, in a minute and laborious copy of the tattooed lines upon his own face." The lines as illustrated by Marsden are very roughly drawn and resemble very closely the design of an amokoed face published by Shortland<sup>5</sup> from Banks Peninsula in Middle Island, and the Maori witness has given a signature which appears to be part only of face tatu or moko. Scherzer was informed authoritatively<sup>6</sup> "that on the occasion of the chiefs ratifying the treaty with the English they superscribed the various documents with the lines upon their faces, like so much heraldic blazonry, instead of writing their names." The custom first referred to by Marsden had apparently become popular, but there appears to be no reason for Polack's statement<sup>7</sup> that "tattooing is the sign-manual and crest of a native chief. In title-deeds of land-purchases, or receipts of any description, the *moko* or fac-similes on the face of a chief are correctly represented by him on paper. The initials or crest on the seal attached to the watch or ring of a European is accounted by a native as the '*moko*' of its owner." In fact, Dieffenbach states plainly the "*moko* does not form what might be called the *arms* of an individual,"<sup>8</sup> and adds that the affixing of their *moko* or some other figure as their signature by the natives seems a "modern invention"—which, of course, it must have been. "Slaves, if they have been taken when children, are not tattooed, nor is the operation completed in those cases where it has already been partly performed upon them."<sup>9</sup> "Slaves are tattooed as well as the chiefs, but there are various forms which the former are not permitted to use."<sup>10</sup> This fact

<sup>1</sup> Cruise, *op. cit.*, p. 264.

<sup>2</sup> *Op. cit.*, II, p. 45.

<sup>3</sup> *Op. cit.*, III, p. 450.

<sup>4</sup> *Miss. Register*, 1816, p. 328.

<sup>5</sup> *Op. cit.*, p. 16.

<sup>6</sup> *Novara*, Lond., 1863, III, p. 114.

<sup>7</sup> *Op. cit.*, II, p. 48.

<sup>8</sup> *Op. cit.*, II, p. 34.

<sup>9</sup> *Op. cit.*, II, p. 34.

<sup>10</sup> Brown, *N.Z. and its Aborigines*, Lond., 1845, p. 31.

probably led Darwin to write when at Waimata that "as it is a badge of distinction between the chief and the slave, it will probably long be practised." D'Urville's information was to the effect that mokoing "is not allowed to the Kukies (slaves), to the general public, and even to those who dare not join in combats unless they are authorised to wear them on account of high birth. Tuai assured me that the general public acquire the right of *moko* by means of exploits of war, and after an honourable campaign, the chiefs generally added some new design in token thereof. He also told me that the same designs were gone over several times in the course of one's life, sometimes even four or five different occasions. He told me that Shongui had received all his *mokos*, as his face had been subjected to five tatuings. As for himself he had only got as far as his second tatuing, but he counted on obtaining his third on the return of an expedition which he was then meditating. Perhaps these honour degrees in *moko* are not so precise as Tuai wished me to believe, anyhow it is certain that the privileges of *moko* are limited to men of distinguished birth or to warriors celebrated for their grand deeds, and that a *rangatira* considers himself the more honoured the more his face is *mokoed*." To D'Urville, *moko* "seemed to be the exact equivalent to the armorial bearings of Europeans, with this difference, that the armorial bearings simply proved the individual merit of him who had first been able to obtain them without in any way proving any merit in his children, while the decoration of the New Zealanders proves in an authentic way that in order to have the right of wearing it he has had to show proof of extraordinary personal courage and patience. Nothing demonstrates better these ideas which the New Zealanders attach to their *moko* designs and their analogy with our armorial bearings than the following observations:—Tuai one day, with great pride, called my attention to some bizarre designs engraved on his forehead, and as I asked him what there was so remarkable about them, he replied: 'The Koro Koro family is the only one in New Zealand which has the right to wear these designs; Shongui, powerful as he is, could not take them, for the family of Koro Koro is much more illustrious than his.'<sup>1</sup> In fact, the strange decorations have the advantage of announcing at the outset and in an authentic manner the rank of every individual, and to assure him of the consideration to which he is entitled."<sup>2</sup> In his short reference to mokoing, Anderson<sup>3</sup> says, "but it is doubtful if this be ornamental, or intended as a mark of particular distinction," and we are informed by Crozet that "the chiefs were very pleased to show us all the tatuings on their bodies, and several were proud and conceited about them."<sup>4</sup> Savage at the time of his visit, found the men still proud of their marks. He says: "The pantaloons, particularly the posterior part, are in general very highly embroidered, and of which they are not a little vain."<sup>5</sup> D'Urville<sup>6</sup> found the natives of Cook's Straits as vain of their mokoing as those of the northern portion of *Ika na mani*. If a youth

<sup>1</sup> *Op. cit.*, pp. 451–3.

<sup>2</sup> D'Urville, *ibid.*, p. 453.

<sup>3</sup> *Cook, Third Voyage*, book I, chapter vii.

<sup>4</sup> *Op. cit.*, p. 39.

<sup>5</sup> *Op. cit.*, p. 47.

<sup>6</sup> *Op. cit.*, p. 449.

twenty years of age be not mokoed “ he is considered unmanly if he has not endured part of this painful process. . . . When Wheety, who was half anglicised by a long residence amongst us, was told that he ought not to adopt this frightful custom of his countrymen, he said if he did not he should be despised, and perhaps taken for a woman.”<sup>1</sup> Similarly “ Tooi informed us [Marsden] that Korrokorro wished him to be tattooed. We told him that it was a very foolish and ridiculous custom ; and, as he had seen so much of civilised life, he should now lay aside the barbarous customs of his country, and adopt those of civilised nations. Tooi replied that he wished to do so himself; but his brother urged him to be tattooed, as otherwise he could not support his rank and character as a gentleman among his countrymen, and they would consider him timid and effeminate.”<sup>2</sup> Although Dieffenbach<sup>3</sup> tells us that “ *moko* is not an enforced ceremony, but any one may have it done, or not, according to his wishes,” we have Taylor’s statement<sup>4</sup> that a “ *papatea* or plain face was a term of reproach,” thereby supporting Marsden. According to Yate “ the tattoo is not a special mark of chieftainship, as has been stated by almost all [*sic*] writers on New Zealand ; for many chiefs, of the first rank, are without a single line; others, even to old age, are only partially covered ; and many a slave has had the greatest pains taken, to give this ornamental operation the greatest effect upon his plebeian face. Nor do the peculiar marks on the faces of different people denote their rank, or the tribe to which they belong ; it all depends upon the taste of the artist, or upon the direction of the person operated upon.”<sup>5</sup> “ Each man thinks himself, and is thought by others, to be more brave if he submits boldly and unflinchingly to the taps of the tattooing instrument ; and not a few imagine that it adds to their beauty, and submit to it that they may be followed and admired by the women.”<sup>6</sup> “ Persons at all ages and of all ranks who possess means or influence to obtain it, get tattooed, chiefs, freedmen, hereditary bondsmen, and slaves. Though often a distinctive insignia for a tribe, yet it is no sign of rank, as warriors are captured at all ages, marked or otherwise.”<sup>7</sup> “ The *moko* is neither intended to constitute a distinctive mark between different tribes, nor to denote rank, as has been variously stated. It is, in fact, only a mark of manhood, and a fashionable mode of adornment, by which the young men seek to gain the good graces of the young women. It only so far denotes rank, that the poor may not have the means of paying the artist, whose skill is necessary.”<sup>8</sup> “ To have fine tattooed faces was the great ambition of young men, both to render themselves attractive to the ladies and conspicuous in war ; for even if killed by the enemy, whilst the heads of the untattooed were treated with indignity, and kicked on one side, those which were conspicuous by their beautiful *moko* were carefully cut off, stuck on the *turuturu*, a pole with a cross on it, and then preserved ; all which was highly

<sup>1</sup> Cruise, *op. cit.*, p. 264.

<sup>2</sup> *Op. cit.*, 1822, p. 252.

<sup>3</sup> *Op. cit.*, II, p. 34.

<sup>4</sup> *Op. cit.*, p. 150.

<sup>5</sup> *Op. cit.*, p. 148.

<sup>6</sup> *Ibid.*, p. 149.

<sup>7</sup> Polack, *op. cit.*, II, p. 47.

<sup>8</sup> Shortland, *op. cit.*, pp. 16–17

gratifying to the survivors and the spirits of their late possessors.”<sup>1</sup> In the early days Marsden wrote<sup>2</sup>: “In time of war, great honour is paid to the head of a warrior, when killed in battle, if he is properly tattooed.”

### 17. VARIETY IN FACE DESIGN.

As we have seen above, Banks remarked on the fact that no two individuals had the same *moko*. Shortland in describing some scrolls, one of which occasionally replaces another, continues: “This is the only notable variation I have ever seen, and this is merely a matter of taste. As a general rule, two fully marked faces selected at hazard from distant parts of the country would, on comparison, manifest merely some slight dissimilarities, attributable to the difference of skill or taste of the artists who had executed the work.”<sup>3</sup> It must be remembered, however, that the greater part of Shortland’s experience was limited to a small portion of the southern districts. Brown<sup>4</sup> differs from the above opinions with regard to the *moko* not being distinctive of a tribe or individual, and in speaking of the great sameness exhibited by the lines continues: “Notwithstanding that they are positively different in each individual, being varied to suit the peculiar formation of his countenance. *Tatooing* appears almost reduced to a system, as each tribe possesses some peculiarity in the form of the *tattoo*; so much so, that, by its means, members of one tribe at once recognise that to which a stranger belongs.” Similarly Yate<sup>5</sup>: “With respect to all fully-marked faces, there is in the marks a great similarity; and it requires a person to observe them very minutely to detect the difference.” This is in accordance with Polack, who says the stains and incisions are so far from being confined to one fashion or pattern, that tribes are known by such distinctive marks, and many chiefs whose countenances have never been seen by a distant tribe are known simply by the distinguishing mark which has been peculiarly engraved on their countenances.”<sup>6</sup> Joest, when considering the circumstance that *tatu* (? *moko*) served wherewith to recognise individuals, says such fact “proves most conclusively that every man bore on his face his specific mark.”<sup>7</sup> Robley likewise says: “No two Maories were alike in their markings.”<sup>8</sup> The foundation patterns appear to be seven in number, so that with allowance for individual taste and artist’s fancy it is quite possible the adult males of a population numbering, at the first arrival of the Europeans according to Réclus, one hundred thousand, can have found sufficient variety to give every one a design sufficiently differentiated to be quickly and appreciably noticed. To obtain a fairly conclusive answer to the question as to whether there was this variety a comparison might be made of the designs on every head, of which there must be a few hundreds in our museums.

<sup>1</sup> Taylor, *op. cit.*, p. 152.

<sup>2</sup> *Op. cit.*, 1822, p. 252.

<sup>3</sup> *Op. cit.*, p. 18.

<sup>4</sup> *Op. cit.*, p. 30.

<sup>5</sup> *Op. cit.*, p. 151.

<sup>6</sup> *Op. cit.*, ii, p. 42.

<sup>7</sup> *Op. cit.*, p. 29.

<sup>8</sup> *Op. cit.*, p. 91.

## 18. THE ORIGIN OF TATU AND MOKO.

As regards the origin of *moko*, Taylor<sup>1</sup> tells us : " Before they went to fight, the youths were accustomed to mark their countenance with charcoal in different lines, and their traditions state that this was the beginning of the tattoo, for their wars became so continuous that to save the trouble of thus continually painting the face, they made the lines permanent by the *moko* ;" but in the second edition of his book, published in 1870,<sup>2</sup> he adds : " It is, however, a question whether it did not arise from a different cause; formerly the grand mass of men who went to fight were the black slaves, and when they fought side by side with their lighter-coloured masters, the latter on those occasions used charcoal to make it appear they were all one," an explanation difficult to accept. All the same, Taylor<sup>3</sup> was told in 1840 by an old native that originally his people were not warlike, that charcoal was used to mark the faces, and that *mokoing* was a late invention.

## 19. THE PAPUAN ELEMENT IN NEW ZEALAND.

We must now make a slight discursion and examine into the question of a pre-Maori black population in New Zealand.

Crozet, writing in 1770, expresses his astonishment at seeing three varieties of men in the Bay of Islands, one with yellowish white, with black hair, another more swarthy, not so tall, with hair slightly frizzled [? curled], and a third kind the men of whom consisted of " true negroes with woolly heads, and shorter than the other two." He speaks of all three kinds being handsome and well formed men.<sup>4</sup> I cannot find that either Cook or Banks refer to this black people, but Banks<sup>5</sup> says : " A few [natives] had on their faces or arms regular scars, as if made with a sharp instrument, such as I have seen on the faces of negroes." These may be merely the marks left by the *tangi*, or they may have been those we now call *keloids*, which the negroid races are so fond of marking on their bodies, and which are widespread amongst the Melanesians. If, however, either Banks or Cook had seen these true negroes they would probably have recorded the fact. D'Urville<sup>6</sup> describes in fairly conclusive terms the peculiarities of two varieties of people in New Zealand, one variety of which, according to these descriptions, was decidedly negroid. It must, however, be remembered that D'Urville kept no proper journal and his accounts were almost wholly written from memory, which detracts from the value of his statements. Lieutenant Charles Hamilton Smith<sup>7</sup> supports the opinion of the existence of Papuan and Polynesian races in New Zealand on linguistic and legendary evidence neither of which as given by him can be considered by themselves very satisfactory. He refers on p. 460 to Plate XX in his book, one

<sup>1</sup> *Op. cit.*, p. 151.

<sup>2</sup> *Ibid.*, p. 320.

<sup>3</sup> *Op. cit.*, p. 194.

<sup>4</sup> *Op. cit.*, p. 28.

<sup>5</sup> *Op. cit.*, p. 186.

<sup>6</sup> *Op. cit.*, II, p. 387.

<sup>7</sup> *Nat. Hist. of the Human Species*, Edin., 1848, p. 231.

figure on which he describes as a Polynesian Maori and the other a Papuan Maori, and adds: "The two figures confirm that two distinct races existed there anterior to the European discovery." But in both figures the hair is shown curly although the physiognomies are quite distinct; however, neither of the portraits can be considered sufficiently accurate in order to base an opinion thereon. Dieffenbach<sup>1</sup> enters fairly fully into the characteristics of alleged two distinct peoples and adds that the black race, "which is mixed in insensible gradations with the former, is far less numerous, and does not predominate in any one part of the island, nor does it occupy any particular station in a tribe, and there is no difference made between the two races amongst themselves, but I must observe that I never met any man of consequence belonging to this race, and that, although free men, they occupied the lower grades." He further gives it as his opinion that it is very doubtful whether those differences which we observe amongst the natives of New Zealand are due to the previous existence in the country of a darker race afterwards conquered and nearly exterminated by the arriving Polynesians. He remarks on the absence of any trace of blending in the language and no trace of it "in the traditions, which certainly would have mentioned the conquest of one race by the other if it had really happened." Finally, as regards Crozet's discovery of the darker race at North Cape, he could on visiting the place seventy years later find no trace of such blacks there, and adds: "Nor are these darker-coloured individuals more common in the interior; I should say even less so." Polack<sup>2</sup> draws a clear distinction between the two peoples: "The nation consists of two aboriginal and distinct races. . . . The first may be known by a dark brown complexion, well formed and prominent features, erect muscular proportions, and lank hair, with a boldness in the gait of a warrior, wholly different from that of the second and inferior race, who have a dark complexion, brown-black hair, hair inclining to the wool like the Eastern African, stature short, and skin exceedingly soft. In physical character the two castes differ in a great degree." Taylor<sup>3</sup> tells us: "The remains of this race [the Melanesian] are to be seen in every part of New Zealand, especially among the Nga-ti-ka-hunu, to which the derisive name of Pokerekahu—Black Kumaru—is applied." Quatrefages and Hamy<sup>4</sup> call attention to the fact that although many travellers speak of the existence of blacks among the Maories their interpretations of their observations are extremely varied, nor are they based on anatomical investigations. They say Dieffenbach's description of a male skull tallies exactly with that of a Papuan.<sup>5</sup> They also maintain that a New Zealand skull presented by Arnoux in 1847 to the Mus. Nat. Hist., Paris, as a good type of the skull of the New Zealand black race, has decided Papuan characteristics. They assert that the skull described by Huxley<sup>6</sup> cannot be distinguished from those from Melanesia, and especially from those from the New Hebrides. They say the Paris Museum contains two prepared heads brought home by Freycinet and Lesson,

<sup>1</sup> *Op. cit.*, pp. 7-11.

<sup>2</sup> *Op. cit.*, I, p. 6.

<sup>3</sup> *Op. cit.*, 2nd edition, p. 13.

<sup>4</sup> *Crania Ethnica*, 1882, p. 293.

<sup>5</sup> *Op. cit.*, II, p. 7.

<sup>6</sup> *Journ. Anat. and Phys.*, I, 1867, pp. 60-77.

the woolly hair on which completely recalls that of pure Melanesians. They assert that the Museum recently received a large collection of skulls from New Zealand, amongst which it was not difficult to find several which showed a certain number of changes of type in a Melanesian direction. They are evidently convinced there was a pre-Polynesian black population in New Zealand, and that there was at one time a black element in New Zealand. But they omit to mention that Huxley in describing the skull referred to expressed considerable doubt as to its New Zealand origin, while Carter Blake considered it came from New Caledonia.<sup>1</sup> If it did come from New Zealand it would only support the contention that Melanesians formed part of the aboriginal population, to the limited degree of one specimen. In the map to his paper on "The Distribution of the Principal Modifications of Mankind" Huxley gives the New Zealand islands one colour, thereby indicating a pure and not a mixed race.<sup>2</sup> This is perhaps due to the fact later on mentioned by Flower<sup>3</sup> that though the Melanesian element in its wider sense is present in New Zealand "it is completely overlaid by the Polynesian." Quatrefages and Hamy also call in the aid of Hochstetter, Cook at Cape Brett, Nicholas, and Earle, but in none of these authors can I find any confirmation. Hochstetter<sup>4</sup> says nothing about the presence of Melanesians in New Zealand; Cook does not refer to the question at all either at Cape Brett or elsewhere; Nicholas<sup>5</sup> merely mixes up Polynesians and Fijians; while Earle indulges in some unimportant comparisons. Hursthouse's *New Zealand*, also referred to by Quatrefages and Hamy, I have not seen. Sir W. Turner, writing two years after Quatrefages and Hamy, points out that in the crania of the Maori there is a tendency "to assume dolichocephalic proportions and thus to depart from a pure Polynesian type, much more strongly than is the case with the Samoans, the Marquesas Islanders, or even the Sandwich Islanders,"<sup>6</sup> and he comes to the conclusion that New Zealand had been occupied by a dolichocephalic and probably a Melanesian race, before the Polynesian element was introduced to it."<sup>7</sup> This priority of local existence he extends to other islands, for he adds,<sup>8</sup> he is led to "a conclusion similar to that arrived at by W. L. Ranken from a consideration of other data, viz., that the South Sea Islands had been inhabited by Papuans prior to the Mahori colonisation." Sir W. Turner is, however, apparently not quite satisfied on account of other ethnological data as to whether the two races, Melanesians and Polynesians, were the "only races which have ever occupied these islands."<sup>9</sup> In opposition to these views we find Hale writing in 1846<sup>10</sup>: "Some voyagers have believed that they saw in the natives of New Zealand at least two distinct races of men, of which one approached the yellow Polynesian and the other the black Papuan family

<sup>1</sup> *Anth. Rev.*, IV, p. 407

<sup>2</sup> *Journ. Ethn. Soc.*, N.S. II.

<sup>3</sup> *Journ. Anth. Inst.*, XIV, p. 384.

<sup>4</sup> *New Zealand*, English edition, Stuttgart, 1867.

<sup>5</sup> *Narrative*, II, p. 267.

<sup>6</sup> "Challenger" Reports, Part XXIX, "Human Crania," p. 108.

<sup>7</sup> *Ibid.*, p. 109.

<sup>8</sup> *Ibid.*, p. 110.

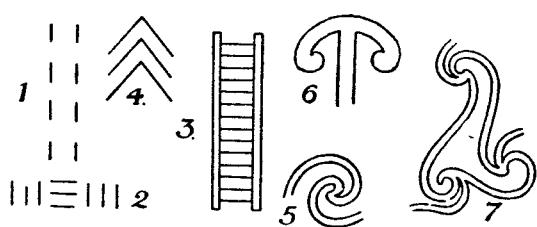
<sup>9</sup> *Ibid.*, p. 113.

<sup>10</sup> *Op. cit.*, p. 11.

The latter, they say, are distinguished by their shorter stature, darker complexion, and frizzled hair. Our observations did not confirm the correctness of these statements. It appeared to us that the physical differences were no greater than are seen in every country between different classes of people—between the well-fed, luxurious idler, and the half-starved, ill-clad labouring man. We saw many stunted forms and dark complexions among them, but no instance of what could properly be termed frizzled or woolly hair.” Deniker<sup>1</sup> ignores the question altogether. To obtain linguistic evidence as to whether there existed or did not exist any Melanesian or Papuan element in the Maori dialects I applied to Mr. Sydney H. Ray, who kindly replied as follows:—“The Maori and other Polynesian languages seem to be the modern representatives of an ancient language which was cognate to certain Melanesian languages, but not to all. The present Melanesian languages most closely related to Polynesian are those of the South Solomon Islands (perhaps also New Guinea), Fiji, Banks Islands, and North New Hebrides. In parts of the Polynesian region, especially in Paumotu and Tahiti, and to a less extent in Rarotonga and New Zealand, there are traces of an older stock, of which words only have survived without appreciably affecting the grammar. This strange element is not Melanesian (for Polynesian and Melanesian vocabulary and grammar are mainly the same but are distinct). For want of a better name it may be called Papuan.” This opinion places the Maories on the same footing as other Polynesians, and practically supports the theory of some pre-Polynesian race or races. The evidence of European eye-witnesses is, as we have seen, meagre and vague, and hence of itself not of sufficient value as a factor of determination, but added to the cranial and linguistic evidence, the three together must be accepted as proving a Melanesian element to have once existed in New Zealand.

## 20. THE PATTERNS AND THEIR ORIGIN.

There appear to be seven patterns made use of by the Maories in their *tatu* and *moko*:—



1. The line of dots or strokes.
2. The mat- or plait-work pattern.
3. The ladder pattern.
4. The chevron.
5. The circinate coil.
6. The anchor.
7. The trilateral scroll.

The *first* pattern is shown by S. Parkinson and consists of consecutive short vertical lines dropping down over or following the contour of the forehead or of dotted lines following somewhat the contour of the face (Fig. 19).

<sup>1</sup> *The Races of Man*, London, 1890.

The second pattern is shown by Tregear<sup>1</sup> in a sketch of a tatooed native whose face, but for a solitary letter-S-shaped line (Fig. 20), is covered with parallel lines in groups of three, each set more or less alternately in such a way that if extended to their full they would make the common basket-, mat-work, or plait pattern. Of this he says: "In New Zealand the curves of the modern tattooing (the tattooing of Mataora) are said by Mr. White (whose knowledge of the Maori is very great), to have superseded a different fashion for marking called *mokokuri*. From the description given to Mr. White by the old priests I drew the picture forming the frontispiece of his new work *The Ancient History of the Maori*. It can be seen by this that a peculiar system of marking existed: horizontal and vertical lines arranged in sets of threes." Scherzer, who must have obtained his information from White or some old resident, for he did not stay long enough in the islands to investigate for himself, unfortunately turns this statement<sup>2</sup> into one that this early stage had only been reached when Cook visited the islands, which, with Cook's, Banks's, and Parkinson's descriptions before us, we know



FIG. 20.—Tatoo marks according to White as depicted by Tregear (*New Zeal. Inst.*, XX), to show No. 2, or plait-work pattern.



FIG. 19.—Portrait taken at Poverty Bay (Gisburne) by S. Parkinson, showing No. 1 pattern on forehead and cheeks and under eyes; No. 3, or ladder, pattern across nose; and No. 5, or simple circinate coil, on cheeks, nose, etc.



FIG. 22.—Portrait taken at Cape Brett, Bay of Islands, by S. Parkinson, showing No. 1 pattern on forehead; No. 3, or ladder, pattern; and No. 7, or trilateral scroll, pattern on nose and cheek.

<sup>1</sup> *Trans. New Zealand Inst.*, XX.

<sup>2</sup> *Op. cit.*, III, p. 110.

must be incorrect. A small wooden effigy in the British Museum has similar lines, but in sets of two, arranged in the same way (Fig. 21). This form reminds us of the mat-work carved patterns so common in Polynesia, and especially of the *tatu* in Hawaii<sup>1</sup> as depicted by Choris as late as 1822.

The *third* or ladder pattern is shown in Sydney Parkinson's portrait of a chief<sup>2</sup> (Fig. 22) taken at Cape Brett, Bay of Islands, on Cook's first voyage, and makes as it were a background to the curious trilateral scrolls. Choris shows this ladder-like form in *tatu* marks in the Sandwich Islands, and it is found as decoration on utensils in Fiji, Tonga, and elsewhere. It may have resulted as an elongation of the lines of the first pattern. D'Urville shows the thigh *tatuing* of a Maori man in which the rungs have disappeared so that only parallel lines remain, and Robley<sup>3</sup> shows the ladder pattern with the rungs close together.

The *fourth* pattern is the chevron, not very common (Fig. 23). Robley shows it on *tatued* lips,<sup>4</sup> and it is to be seen on the left cheek of a well preserved *moko* head in the Bankfield Museum, under my care in Halifax.

<sup>1</sup> "Artificial Skin Marking in the Sandwich Islands," by H. Ling Roth. *Internationales Archiv für Ethnographie*, Leiden, 1900, p. 198 *et seq.* In connection with this coincidence I may mention Frank's opinion, referred to by Moseley, that "as far as regards the special development of art, and forms of implements of use amongst the New Zealanders, that people are nearly allied to the Hawaiians, certainly more nearly so than to the Samoans, from colonists of which race Hall supposed that the Maories were sprung. The stone adzes of the New Zealanders are of the same form as those of the Hawaiians, and both differ for example from those of Tahiti. *Naturalist on the Challenger*, London, 1879, p. 510." Dieffenbach (II, p. 91) seems to have held a similar opinion in regard to language, custom, and relationship. He says: "There is such affinity between the dialects of

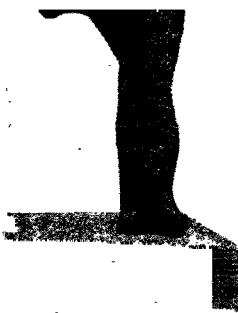
FIG. 21.—Wooden effigy in Brit. Mus. 15½ inches (0·394 m.) high, showing No. 2 pattern on chest, No. 5 simple circinate coil on face and return circinate coil on face and abdomen, also line pattern based on this coil; No. 6, or anchor pattern; and No. 7, or trilateral scroll pattern on thighs, etc.

the natives of Hawaii and those of New Zealand, and to a far greater extent than that common tie which unites all Polynesians." Büchner, too, found great similarity between the Maories and Hawaiians. *Reise d. d. stillen Ozean*, Munich, 1878, p. 326.

<sup>2</sup> *Op. cit.*, Plate XXI.

<sup>3</sup> *Op. cit.*, p. 20.

<sup>4</sup> *Ibid.*, p. 74.



This pattern may possibly have originated amongst the Maories as follows:—The spaces under the tails of the coil are filled in with slant parallel lines, generally concave towards the coil, and diminishing in length; when two such coils are placed back to back, without a dividing line, we have as a result a series of V's fitting into one another, and these when extended would give the chevron.

The *fifth* pattern.—With the introduction of this, the circinate coil, as shown by Parkinson in the portrait of a chief<sup>1</sup> taken at Poverty Bay (Gisborne), appears to have come an adaptation of the *moko* lines to the contour of the face, somewhat similar to the lines adopted in the first pattern. For instance, wavy lines start from the centre of the forehead following the shape to the head, a series of lines curl round from the nostrils to the chin, which lines are made to pass round the mouth in a more or less parallel form. At least so far as my investigations have carried me I have not seen any *moko* faces with the coil and at the same time without these lines. Not infrequently the large coils are supplied with spokes, perhaps due to the mere desire to fill in space, or they may have originated as follows:—On plank end and canoe heads it has not been possible to carve the coils without supports (Fig. 24) or spokes, and from this design the spokes may have been copied

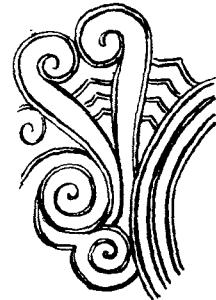


FIG. 23.—Moko on face of Tangieri, a chief of Maungakaia. After Polack. To show possible origin of Maori chevrons.

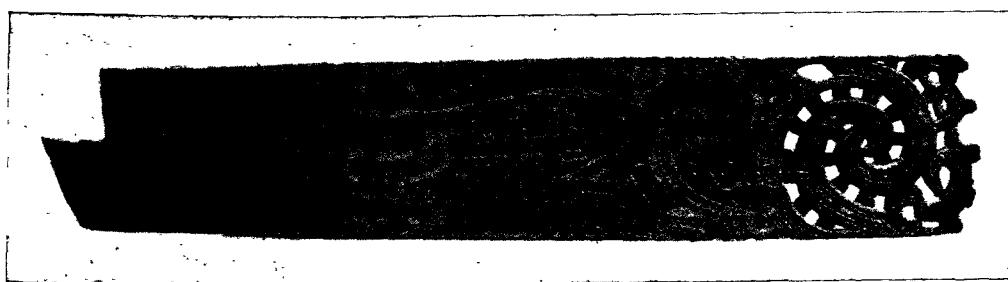


FIG. 24.—Carved wooden panel from a house in Rotorua, Brit. Mus.,  $78\frac{1}{2}$  in.  $\times$  15 in. (1.994 m.  $\times$  0.381 m.). To show return circinate coil with spokes adapted from moko pattern.

back on to the *moko* pattern. Herbert Williams<sup>2</sup> tells us: “The circinate fern fronds or *pitau* are acknowledged in the beautiful carved scrolls on *rapa* (head) of the war canoe.”<sup>3</sup>

The *sixth* or “anchor” pattern, from its resemblance to an anchor, owes its name to Schurtz, who says of it<sup>4</sup>: “There can be no doubt as to its motif: it is

<sup>1</sup> *Op. cit.*, Plate XVI.

<sup>2</sup> Hamilton, *Maori Art*, Wellington, p. 118.

<sup>3</sup> Tregear states very rashly (*Journ. Anthropol. Inst.*, XIX, p. 101), “I believe that I can prove etymologically that the curves of Maori tattooing are snake coils, which they must have learnt far away from Polynesia.” Later on (*Trans. N.Z. Inst.*, 1890, XXXII), having forgotten this statement, he endeavours to prove that the spiral or coil was intimately connected with Maori sun worship.

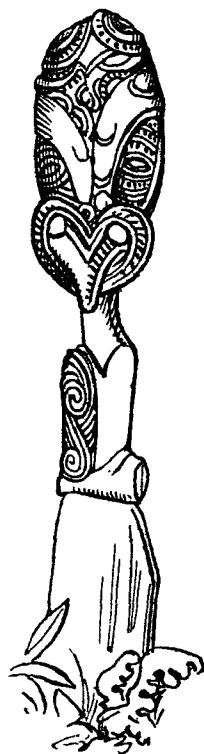


FIG. 27.



FIG. 28.



FIG. 29.

Effigies after Angas. Figs. 27 and 28, Plate XXV, Maketu House, Otawhao Pah; Fig. 29, Plate XXXVIII, House at Raroera Pah. To show obliteration of nose and prominence of tongue, from which anchor pattern could *not* have been developed.

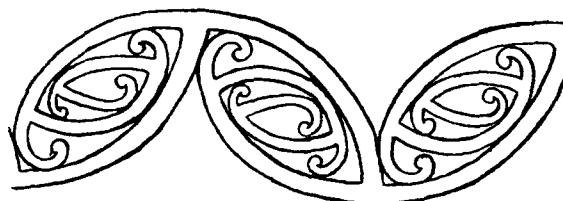


FIG. 30.

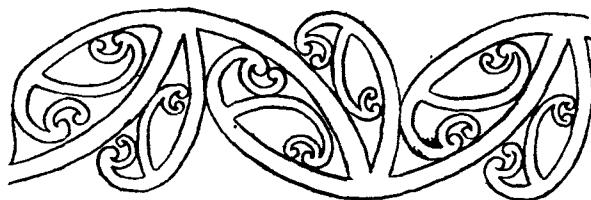


FIG. 31.

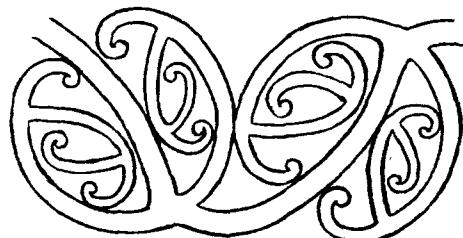


FIG. 32.

Patterns on Maori house rafters. After Herbert Williams in Hamilton's *Maori Art*, Part II, Coloured Plates, Nos. 18, 26, and 5. To show partial later development of anchor pattern according to Williams (p. 118).

nothing else than a crude drawing of a face with nose, mouth, and outline of the cheeks," etc. (Figs. 25, 26). In its double form (Fig. 25) it may suggest a

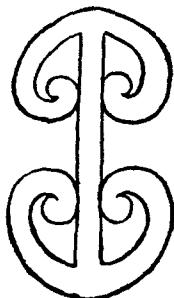


FIG. 25.—Design on the end of a storehouse at Papaitonga. After Hamilton (*Maori Art*, Part II, Plate XV), to show No. 6 or anchor pattern.



FIG. 26.—Pattern on Motu Motu Toarifi (New Guinea) shield, Brit. Mus. To show concentric lines round human mouth for comparison with Fig. 25.

human face, all the more so when compared with a conventionalised face from New Guinea (Fig. 26). But I doubt whether the pattern be what Schurtz

appears to maintain, that is, a conventionalised *Maori* face, because wherever we see a carved *Maori* face in course of devolution the tendency is for the tongue to hang below the mouth, so that the characteristic feature is no longer the nose; hence, instead of the anchor pattern, we should have a pattern like this . The accompanying illustrations from Angas show this (Figs. 27–29). The anchor may however be and probably is a survival of the face of pre-*Maori* Melanesians of New Zealand. Herbert Williams,<sup>1</sup> who has studied the scroll patterns, of which this forms one, on the spot and with native assistance, tells us the midribs are a "modern invention" (Figs. 30–32), and he points out<sup>2</sup> how the sweep of the outer curve of the scroll got broken. But this requires further proof.

The *seventh* or trilateral scroll, which is apparently not as rare as the chevrons, is made up of return curves.

FIG. 33.—Pattern on Maori Buliroarer, Brit. Mus. To show probable connection between anchor and trilateral scroll patterns. These return curves are by Williams<sup>3</sup> considered to owe their origin to the flower of the *Cianthus puniceus* (Fig. 33).

The interest in *Maori* art as distinguished from that of the rest of Polynesia lies in the preponderance of curves and especially of spirals, the latter of which are almost entirely wanting among Polynesians outside New Zealand.

The Marquesans, who carried *tatuinga* to its extreme and considerably surpassed the *Maories*, had a design on the back of the hand which may possibly be a

<sup>1</sup> *Op. cit.*, p. 119.

<sup>2</sup> *Ibid.*, p. 118.

<sup>2</sup> *Ibid.*, p. 118.

spiral, while a not uncommon design on their incised work is a small and double spiral.<sup>1</sup> On the other hand, the Papuan branch of the Melanesians, if we are to distinguish between them, revel in the spiral in its various developments. The indications would therefore be that there has been some considerable contact between the Papuans and the Maories. This view appears to be strengthened by the strong resemblance between some of the Maori and New Guinea scrolls. For instance, if we compare the excised portion of Haddon's illustration of the decoration of a Maori nose flute with the decoration of the coco-nut from Dutch New Guinea we find a very close resemblance. Looking at the joined coils (Figs. 34 and 35) A B, we find in both cases A has an arm running out in the direction C, the filling-in being likewise similar in both cases. These resemblances *may*

possibly be coincidences due to the extreme variability to which the scroll or connected coil lends itself, but I doubt it. Haddon remarks that these resemblances<sup>2</sup> are more or less superficial, that there is more interlocking in the Papuan than in the Maori patterns, the bird element is entirely wanting, etc., etc. Schurtz,<sup>3</sup> in discussing Maori carving, considers that in the spiral *tatu* (*moko*) and carving "we have to deal with a new fashion, which has so much in common with Melanesian art that it can hardly pass as independent origin (*Erfindung*); perhaps it belongs to the Melanesian element in the Maori population and had by chance after long neglect become

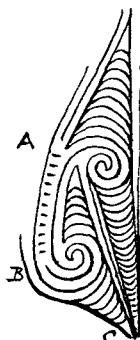


FIG. 34.

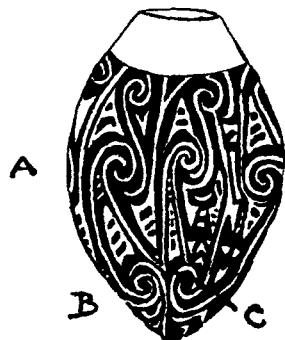


FIG. 35.

FIG. 34.—Portion of the decoration on a Maori flute. After Haddon (*Evolution in Art*, p. 72). FIG. 35.—Decoration on a coconut from Dutch New Guinea. After Preuss (*Internationales Archiv für Ethnographie*, Leiden, XII, p. 178). To show resemblance between the two decorations.

fashionable again." This is not at all improbable: Pitt-Rivers has shown an example of revival in ornamentation on Solomon Island spears.<sup>4</sup> Mention has been made above of a wavy line or a letter-S-shaped figure on a face covered with an early form of *tatu*. Robley gives a drawing (Fig. 20) of this face reproduced from White's *Ancient History of the Maori*,<sup>5</sup> but in the text his engraver has mutated the form of the letter S into that of the Greek *sigma*. This letter S is mentioned by Crozet in 1772<sup>6</sup>: "They have also on both hands two little black engravings drawn very correctly in the form of an S." Polack

<sup>1</sup> An illustration in *U.S. National Museum Report*, 1888-9 (Plate LII), of an Easter Island paddle in the National Museum, Smithsonian Institution, appears to be ornamented with spirals, but a close examination shows this not to be the case.

<sup>2</sup> *Ecolution in Art*, London, 1895, p. 72.

*Nature*, 1881, XXIV, p. 238.

*Op. cit.*, p. 39.

<sup>3</sup> *Op. cit.*, p. 53.

Vol. i, frontispiece.

gives an illustration of a hand with a curious design which may have developed from the S form (Fig. 38). That a wavy or S line could have developed into trilateral spirals or coils has been shown by Flinders Petrie to have been the case with some ornamentation on scarabs<sup>1</sup> (Figs. 36 and 37). There is no reason why the almost infinite variety of spirals and scrolls as depicted in Maori art could not have had an independent origin, the circinate coil being the basis, with a natural motif in the bracken, as mentioned by Williams and already referred to. If a topographical survey of the distribution of ornament in New Zealand could be made it would probably throw considerable light on the origin and development of the patterns under discussion, for the records of Cook and Banks show that in different localities different patterns prevailed. If we were shown that in localities where the Melanesian element existed the spiral was originally more prominent either as moko or other decorative design than elsewhere we could fairly conclude that the spiral in New Zealand was of pre-Polynesian or of Melanesian origin. But so far as I can find while spirals were met with by Europeans in the early times in the moko at Bay of Islands and Poverty Bay in the North Island and on Banks Peninsula in Middle Island, there is as yet nothing to shew that the Maories in these parts were more or less pure Polynesians than elsewhere, although Sir W. Turner found that the cephalic index varied occasionally in the same tribe.

I am inclined to adopt a non-local origin for the spiral patterns for which there appears to be also possible support in the fact that the Maories who have a comparatively large amount of Melanesian mixture make use of the spiral to an unlimited extent while the Marquesans, who have less of this mixture, show very little of the spiral. The Sandwich Islanders with about an equal amount of mixture appear to be without any spiral at all in their decorative art, and a branch of the Melanesians, i.e., the Fijians, appear to be equally wanting in the spiral. But as the decorative arts of both Fijians and Hawaiians are in about an equally low stage, they can be left out of consideration.

In a question of this sort we are bound to consider the race elements, and the Melanesian



FIG. 38.—Tatu mark on back of hand of Maori chief Tamaroa, whose face bears the usual coil and other moko patterns. After Polack (I p. 67).

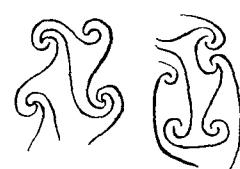


FIG. 36. FIG. 37.

Figs. 36 and 37.—Patterns on scarabs developed from a wavy line. After Flinders Petrie (*Egyptian Decorative Art*, Lond., 1895, pp. 26, 27).

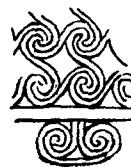


FIG. 39.



FIG. 40.

FIG. 39.—Scroll pattern on Danish bronze celt from *Mem. d. Antiquaires du Nord*, 1887, p. 258, quoted by G. Coffey (*Jour. Roy. Soc. Ant.*, Ireland, 1896). FIG. 40.—Scroll pattern on Stele from *Grav. V. Mycene*, after Schliemann, quoted by Coffey, *ibid.* To show existence of trilateral scroll and anchor pattern in countries with improbable connection with New Zealand.

<sup>1</sup> *Egyptian Decorative Art*, London, 1895, pp. 17 et seq.

element (though hidden) is probably not so far distant that it has no influence on the decorative art, and if this view is correct we may all the more reasonably arrive at the conclusion that the spiral pattern in Maori tatoo and moko was of Melanesian origin.

In his tentative thought that the style of carving was altered to suit the new *tatoo* (*moko*) patterns, Schurtz comes to the same conclusion as Haddon, who records his impression<sup>1</sup> "that the carved designs have been mainly derived from tattooing," etc. Both Haddon and Schurtz, therefore, would not agree with Joest<sup>2</sup> that the *tatoo* patterns of a people always correspond to those on the utensils in daily use, for in the case of the Maories it is the carvings which correspond to the *tatoo* marks.

#### 21. COMPARISON WITH OTHER PEOPLES.

Ratzel,<sup>3</sup> in speaking of African *tatus* (really *keloids*, as his text shows), says: "But the *tatuing* of the Tushilange has been compared with that of the New Zealanders; it is certainly the most complete of all African *tatus*. Even Virchow has compared the patterns (*Linienführung*) with that of the Maories." As Ratzel gives no reference for this statement, it is impossible to verify it, but in all probability Virchow's reference is merely to some superficial resemblance between



FIG. 41.



FIG. 42.

Faces of Ba-shilange with keloid patterns on face. After Büchner quoted by Frobenius. To show superficial resemblances with Maori moko pattern.

the two. Frobenius<sup>4</sup> gives two portraits of Bashilange whose *tatus* (? *keloids*) he compares with those of the New Zealanders. I cannot trace any such marks on Maori faces, but there are somewhat similar patterns on the carved feather-box (Fig. 43). The curved lines on the lower cheek (Fig. 42), from the upper lip to

<sup>1</sup> *Op. cit.*, p. 72.

<sup>2</sup> *Op. cit.*, pp. 28 and 121.

<sup>3</sup> *Völkerkunde*, second edition, Leipzig, 1895, II, p. 79.

<sup>4</sup> *Ursprung der Kultur*, Berlin, 1898, p. 338.

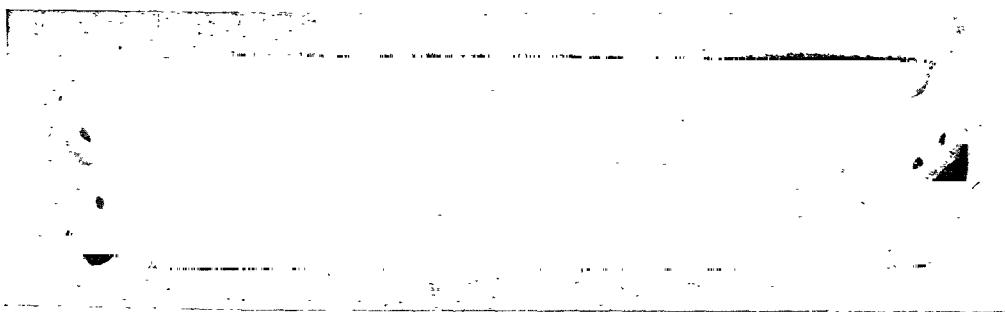


FIG. 43. Carved Maori box. Brit. Mus. To show superficial resemblances with Bashilange keloid patterns.

the chin and back to nose, are quite different from the similarly placed lines on the Maori, and the conventional exaggerated snake form (Fig. 41) is not found in the Maori.<sup>1</sup> The range and developments of the coil are infinite; we find them in the decorative art of the Celts, Saxons, Egyptians, Americans, etc., but superficial resemblances of this sort can have no ethnographical meaning. If individual lines such as those round the mouth are to be of any value for determination of affinity, then we must find relationship between some of the Naga hill tribes (Fig. 44) and the West Africans and Maories. Such comparisons are not reasonable. In their straight line stages Maori *moko* and *tatu* had probably close connection with other Polynesian designs, and possibly closest with those of Hawaii, but through the adoption of the Melanesian circinate coil, they obtained a series of designs quite different from that of any other people. On the other hand, the operation of *moko*, as opposed to that of *tatu*, has its counterpart in other countries.



FIG. 44.—Tattooed face of a Vengam of Senua, Naga Hills. After Woodthorpe (*Journ. Anth. Inst.*, XI). To show *tatu* lines following contour of the features.

#### DISCUSSION.

MR. READ observed that the most important point to determine was the original purpose of the practice of *moko*. He thought that the reasons adduced by Mr. Ling Roth and by others were scarcely adequate. There was an intimate connection between the painting of the face or body and the habit of tattooing, and in his judgment a strong motive was required before a man would undergo such a painful operation. Painting was a simple process, and could readily be done for a special occasion. The virtue of *moko* was its permanent character.

MR. EDGE-PARTINGTON said that in his opinion the tattooing implements shown on the screen were with the exception of the one at the extreme top from either Tahiti or Tonga; he differed from the opinion expressed by Mr. Ling Roth

<sup>1</sup> Bateman gives a portrait of a woman of the same tribe, with scroll pattern *tatus* (? *keloids*), which is very different from any Maori pattern. *First Ascent of the Kasai*, London, 1889, p. 20.

that the variations in the designs on the tattooed head were simply due to the fancy of the artist, and pointed out that Maori carvers in wood were subjected to severe penalties if they deviated in the slightest degree from the traditional pattern. He agreed with the view of Taylor (*N.Z. and its Inhabitants*, 1855, p. 151), namely, that the tattooing of the face originated from the old custom so common all over the Pacific of painting the face before going into battle.

The PRESIDENT gave a demonstration illustrated by lantern slides on the scroll patterns of the Massim District of British New Guinea (*i.e.*, Lousiades, d'Entrecasteaux Group, etc.), and showed that they were derived from the frigate-bird motive. The Maori spiral differs in character from that of British New Guinea, and there is no evidence that it is derived from the head of the frigate-bird. Several years ago he had published the opinion that the Maori spiral was derived from linear tattooing following the contours of certain parts of the body, such as the cheeks, the alæ nasi, and the buttocks. The carvings recently published by Mr. Edge-Partington (*Journ. Anth. Inst.*, xxx, *Miscel.*, Nos. 40, 41, Plate E) had caused him somewhat to modify this opinion (*Man*, May, 1901, No. 55),—although he still believed that the influence of body contours was potent in retaining and emphasising the scroll designs even if it was not actually responsible for their origin. He also alluded to a considerable amount of evidence there was for the view that a large portion of Oceania was inhabited by Melanesians before the Polynesian migrations, and that some of the anomalies to be met with among populations supposed to be of pure Polynesian origin could be accounted for on this hypothesis. Volz even believes that in Melanesia and New Zealand there was an Australoid population prior to the expansion of the Melanesians.

*Explanation of Shortland's Nomenclature to Fig. 13, Page 38.* By SIDNEY H. RAY.

1. *Tiwhana* = to be curved like a bow, *whana* = to recoil (Samoan, *fana* = shoot with a bow).
2. *Rephā* = (?) *repa* = belly of a shark (in Hawaiian, *repa* = border, fringe or hem of a garment).
3. *Nyu* = cuttle fish.
4. *Pongiangia* = *pongi* = nostrils, *angi* = to blow gently (in Samoan, *pongai-isu* = nostrils, *i.e.*, *pogai* = stump, *isu* = nose).
5. *Wakatara* = (?) *waka* = canoe, *tatara* = untied, loose.
6. *Kumikumi* = beard under chin. Samoan, *vumi* = to lengthen out, *umi* = long.
7. *Rerepehi* = (?) *rere* = a waterfall, running of water, to flee, sail, or leap, etc., *pehi* = to weigh down, press, lie down. Tahiti and Hawaiian, to throw stones, etc. = *pei*.
8. *Wero* = to stab, *cf.* Samoan, *velo* = the horns of a cray-fish, also to cast a spear, etc.
9. *Pukaru* = (*pu* probably = spot or mark, knob), *pukoro* = surround with halo, *karu* = head or eye, *koro* = noose.
10. *Koroaha* = *koro* = noose.
11. *Paepae* = may be from *pae* = horizon, *paepae* = threshold. In other Polynesian languages, *e.g.*, Tahiti, *paepae* = a pavement of stones, Hawaiian, *pai* = to stamp or print pattern on cloth.
12. *Putaringu* = *cf.* *pukaru* = above, *taringa* = ear.
13. *Kaurae* = chin.
14. *Titi* = a peg, pin or nail, bird.

## THE YAKUTS.

ABRIDGED FROM THE RUSSIAN OF SIEROSHEVSKI,<sup>1</sup> BY W. G. SUMNER, Professor of Political and Social Science in Yale University, New Haven, Conn., U.S.A., and revised and completed by M. Sieroshevski.

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## I.—SOCIETAL AND INDUSTRIAL ORGANISATION.

THE Yakuts inhabit a territory in North-east Siberia which is roughly 1,300,000 square miles in area, equal to about two-fifths of the area of the United States without Alaska. It all lies north of the parallel of 60 and is colder than any other part of the inhabited globe. The Yakuts number a little over 220,000. (See note A, p. 108.)

[p. 415.] The economic unit amongst the Yakuts, taking the whole territory into account, consists of four persons—two grown labourers, one youth, and one boy or old man incompetent to do full work. Ten head of cattle are regarded as indispensable for the maintenance of such a group. Above that norm the Yakuts think that comfort begins, and below it, poverty. In those districts where fish can be obtained as an adjunct, those who have ten head of cattle are well off; but where neither hunting nor fishing offers additional resources, fifteen or twenty head of cattle are indispensable to secure the existence of a family. The latter is the case in the north, on account of the duration of the winter and the badness of the meadows (see note B, p. 108). In the south, where tillage is available as an important subsidiary industry to maintain life, and where it is easy to find wages occupations in winter, the limit of independent means of existence falls to one and a half head of cattle per soul. In spite, therefore, of the wide difference between the absolute amounts of wealth indicated by these limits—from six to twenty head of cattle, i.e., from 120 to 400 rubles (\$60 to \$200) of capital—all the households that are at the limit stand on the verge of distress. The least accident overthrows the security of their existence, and the least subsidiary resource gives them a chance to live and grow. Such households constitute the great mass of the population. In one *Nusleg* taken as a specimen, of 248 households, 101 are at the limit; 10 have no cattle; 74 have one head, or one and a fraction, per soul; 54 have from 3 to 9 head per soul, that is, are well-to-do in different grades; one has 12 and one has 18 head for each soul

<sup>1</sup> *Yakuty*, published by the Imperial Russian Geographical Society, St. Petersburg, 1896, vol. i, pp. 720. The author, a Pole, was sent as a political exile to the land of the Yakuts, where he remained more than 12 years.

in the household. The author knows only one man in the whole Yakut territory who has 500 head of cattle. There are but two or three persons in the whole country who have at their disposition from 100,000 to 200,000 rubles of capital. Such persons have won their wealth by trade, and their capital consists in wares, money, and various credits.

The limit is set to the growth of households which depend on herding alone, in the first place by the small supply of wages-labourers, and secondly by the communal ownership of land. The point is that the family consisting of four or five souls, of whom three are productive labourers, with a subsistence capital of three head of cattle per soul, constitutes an organisation which can maintain itself with hired labour. The best Yakut mower and two female rakers can make in a summer from 1,200 to 1,800 *puds* (22 to 32 tons) of hay, according to the season. This amount is sufficient to carry through the winter from twelve to fifteen head of cattle. Any household in which the above-described organisation is incomplete must hire labourers, or buy hay, or keep its cattle in a half-starved condition. On the other hand, those who have less than one head of cattle per soul must hire themselves out for wages. Under this organisation the most common and striking phenomenon is that the more independent ones get a higher price for their time and their products than those who are in distress.

The rate of wages is almost everywhere nominally the same. The men get from 35 to 40 rubles per annum with board, if they are able-bodied mowers; and women who rake, or tend cows, get from 20 to 24 rubles, with board. The rations are determined by custom; those of the men are better than those of the women. Only a small part of the wages is paid in money; generally the employers give wares, sometimes such as the employé does not need and which he must sell at a loss. It is still more customary to pay with cattle, especially with horses, either slaughtered or living. The employers try to keep the employed in debt to themselves, and to this end even encourage them in vice—for instance, in gambling. Often an employer retains a portion of the wages and threatens not to pay it at all if the labourer does not consent to work for him still another year. It is not difficult for rich men to execute such an injustice as this, on account of the power which they possess in all Yakut communities. The scarcity of labourers is the cause of this conduct of the employers, but it also causes them, when once they have hired persons, to treat them well. In families in moderate circumstances, employés are taken in on an equal footing. In the north, even in the richest households, if no strangers are present, the employé sits at table with the family. He takes part in the conversation and in household proceedings. His intercourse with the members of the family is simple and free from constraint. The Yakuts are generally polite in their intercourse, and do not like haughtiness. Employés expect the customary courtesy.

The favourite form of labour contract, from the side of the labourers, is piece-work with payment in advance, although the rate of discount for this advance is very excessive. They think it a disgrace to lend money on interest. Probably

these prejudices are due to ancient customs touching economic relations, such as lending out cattle to be fattened upon a contract, or lending out milch cows and mares for a milk return.

The Yakuts dislike to hire themselves out for wages. They return to independence if the least possibility offers. For those who are poor the struggle for independence is so hard that it is useless to talk about their laziness or lack of forethought. If they have less than one and a half head of cattle per soul, they suffer from hunger nearly all their lives. When dying of hunger, they refrain from slaughtering an animal, from fear of losing their independence. The author knows of cases in which the authorities have forced people to slaughter their cattle that they might be saved from death by starvation. Hunger periods occur in every year, during which two-thirds of the Yakut population suffers from semi-starvation for a longer or shorter time. This period is not longer than a few weeks for those whose cattle during the winter were tolerably well nourished, so that in spring they quickly recovered their vigour, or for those who have such a number of cows that the latter produce calves at different times. The poor, however, suffer hunger for months, during which they live by the alms of their more fortunate neighbours. For them the most interesting subject of conversation is, Whose cow has calved? or, Whose cow will soon do so? Sometimes it happens that all the cows in a certain neighbourhood calve at the same time; then, if there is in that district no tillage, or if the grain harvest has failed, famine ensues. Poor people when asked how they manage to live through those frightful months said, "We go to bed and cover ourselves with the coverlet." They drink brick-tea and a decoction of various herbs, and eat splinters of larch or pine, if they still have a stock of them. They cannot obtain them in winter. No axe could then split the wood, which is frozen to the hardness of stone. Where they plant grain, and the harvest is fair, the circumstances are less stringent. On the whole therefore, the dependence on chance is almost tragical. If things that must be purchased rise in price to the slightest degree, if one neighbour has deceived another, or the merchant has cheated in weight, or if calves have died, any of these incidents come as heavy blows upon the barely established equilibrium of the family budget. A few such blows throw the household into the abyss of debt, from which it rarely, or with great exertion, emerges. Two-thirds of the families are in debt; one half of them for small amounts which can be repaid, but the other half are hopelessly indebted, the debts consuming the income year by year. Even amongst those who are called rich, the expenditure rarely surpasses two or three hundred rubles per year, and this they cannot win without hired labour, because the care of the herds which are large enough to produce this net amount far surpasses the power of an average Yakut family; therefore, only a large one, with well combined forces, can get along without hired labour. There are but few such families, and any co-operative organisation is strange to the Yakuts. They prefer to work individually at their personal risk and chances. Even individual handicraftsmen do not organise regular *artels* on the Russian type.

[p. 436.] *Economic Bond of the Sib Group. Common Participation in Goods.*—The size of the *sib* group has always been determined by economic facts. By virtue of an economic shock only does the *sib* begin to split up, and then first do the notions about blood tie make themselves felt to an appreciable degree. This they do in the following manner:—Two brothers, and still more, a father and son, cannot fall into two different *sibs*; nor can grandfather and grandson, or uncle and nephew in the male line and the first degree, do so during the life of the elder. But grandsons in the male line may belong to different *sibs*, especially if the grandfather is dead. We have an especially good opportunity to observe the significance of economic motives in dividing up the *sibs*, and also to observe the insignificance of kin motives in the case of the *sibs* that are still complete, but in which new *sib* centres can already be perceived. These new centres are defined by the relations which are forming about them, although they have not yet acquired new names. They are all separated from each other by greater or less distances in space, and their territorial advantages vary. Also an important part of the property in these new group centres (house, garden, stock of hay, petty household wares and furniture), in case of the death of the owners, have no value except for members of the group in which they are. It is impossible, or not worth while, to transport them, and it is not possible to sell them, since there is no market.

In former times, when the chief wealth of the Yakuts consisted in droves of horses, the size and the conditions of subdivision or combination of the *sib* groups were entirely different. In that distant time we must believe that the consumption on the spot of products which had been obtained from the droves, or from hunting, served as the external condition of the existence and size of a *sib* group. Many traditions point to this fact. For instance, they tell us that if a Yakut slaughters an animal, the viscera, fat, and entrails are divided into portions of different size and worth, and distributed to the neighbours, who, having learned that the slaughtering was to take place, generally take turns in visiting the owner. To fail to give any neighbour a share is to make an enemy. To pass anyone over purposely is equivalent to a challenge, and will put an end to friendly relations between families. We are convinced of the antiquity of this custom by tradition, and by its dying out nowadays. In the places where civilisation has advanced the most it has lost much of its power. That it was a *sib* custom, we are convinced by certain usages at marriages and ceremonies of reconciliation. Distributions of meat are now a part of marriage ceremonies, and the chief dishes served at marriages consist of meat. The formulas of language employed in connection with this use of meat are reminders that the ceremony has created relationships between the participants.

The strength of this custom was proved by a case observed by the author, who saw the gladness of a good-for-nothing fellow, who up to that time had done nothing but receive large shares, but who suddenly, by chance, drove a fat wild reindeer into a swamp, and so in his turn was enabled to make presents to his

neighbours of portions of meat. No comparison would do justice to the self-satisfaction of this individual, when he at last served up the game which he had won. He reserved for himself almost nothing. Other things which are subject to immediate consumption, and can be distributed into small portions, are shared in the same way, especially dainties, like sugar, cookies, or other rarity. Vodka is always divided amongst all who are present, even the children getting a drop. Tobacco also is subject to this custom. It is not degrading but honourable to receive a gift of food from one who is eating, especially if he is an honoured person. It is a violation of etiquette to give little to a rich man and much to a poor man. The opposite is the rule. If one man's cow calves earlier than those of the others, custom requires that he shall share cream and milk with those neighbours who at that time have none. This explains the interest with which, in the spring time, when the cows give no milk, the Yakuts calculate and distribute information about anyone of the rich whose cow is about to calve. This also explains how the poorest people live through the starvation months. When the population is substantially equal, it is evident that these customs are not burdensome, and this is why they prevail especially amongst people of a middle class. The Yakuts would not believe the author when he told them that, in his country, there were rich and populous cities in which people sometimes died of starvation. They asked why anyone should die when he could go to eat with his neighbours?

The circumstances are in all respects more archaic in the northern provinces and more advanced in point of culture in the southern. In the latter the custom is already coming in to sell food to travellers, and even to neighbours, but in many parts of the north they consider it a shame to trade with food. Even the poorest think it an offence if it is proposed to them to take money for lodgings or food. Travellers in winter take hay from the stacks on the meadows, with which to feed their animals, and it is regarded as right. These customs all give some coherence and permanence to the petty groups of the Yakuts which wander in the woods. When travelling, so long as they are in inhabited districts, they need not fear hunger, though they take no provisions with them. The custom constitutes a system of mutual insurance against the misfortunes of life.

*Paupers.*—Care for the poor and unfortunate has always been regarded as an obligation of the *sib*. Impoverished families are cared for in their houses, while the helpless and paupers go about amongst the householders and take their places at the table with the members. Trifling tasks are given them to perform. The author found that the poor and middle class people treated them better than the rich did. According to the notions of the people, it is sinful to despise the unfortunate, who are, however, distinguished from professional beggars living on alms. The latter often are not poor, and it is the belief of the people that the beggars often beg out of greed. The provision for the poor, however, is of a very wretched kind, for the object of the *sib* is to organise persons of equal power and equal right, and not to provide charity.

*Philosophy of Common Participation.*—The custom of distributing fresh meat,<sup>1</sup> and other things, which has been described, was convenient and perhaps necessary in a certain state of the society. The groups remained in close neighbourhood in order to realise those advantages. (See note C, p. 108.)

The kumiss is spoiled in winter by the frost and in summer by the heat, and it does not bear transportation. The Yakuts have never known how to preserve meat by drying or smoking. Hence it was in the highest degree convenient for them to live in groups of such a size that the kumiss and the meat obtained from the cattle and horses could be used as soon as possible. They even have a tradition that horse thieves in ancient times tried to organise themselves into bands large enough to divide and eat up, in a night, the animals they had stolen. We must believe that in ancient times the fundamental grouping of the people consisted of bodies constituted upon the basis of a convenient consumption of the product of a proportionate number of animals. (See note D, p. 108.) Hence the distribution of kumiss and meat served as a symbol of peace, friendship, and union in the *sib*.

*The Notion of Property.*—Right of private property in the house evidently did not exist amongst the ancient Yakuts. Even now they are inclined to regard the dwelling as a common good. Anyone who enters may stay as long as he will. A traveller has a right, according to their notions, to enter any house at any hour of the day or night, and establish himself so as to drink tea or cook food, or pass the night. The master of the house does not dare to drive out, without some important and adequate reason, even one who is offensive to him. In former times they had scarcely any permanent dwellings. They were nomadic, and carried with them all of the house but the framework, which later comers, in their turn, might use. The land belonged to nobody. The herds were considered the property of each separate nomadic group. The nominal owner was the head of the group.

[p. 444.] When the Russians first came in contact with the Yakuts, the *sib* organisation had reached its highest development, and the headship of the *sib* was a dignity exclusively for war and the administration of justice. The groups were then just about what we now see. The elected government was even more nominal than it is now. All questions, as well economic as jural, were decided by a council of the elders. Even now the most independent individuals avoid making any important changes in their industry or sales or expenditures, without taking the advice of older relatives. Such conduct is approved.

*Limitations of horse-herding.*—The subdivision of property, and its consequence, the internal subdivision of the *sib* groups, became possible with the

<sup>1</sup> We are not surprised to be told that cases occur in which attempts are made to conceal the time of slaughtering, in order to escape from the custom of distribution. These are mentioned especially in the southern provinces, and are consistent with the advance of civilisation there.

gradual introduction of horned cattle, which could be kept independently and in small groups. A drove of two or three head of horses had no sense; horses must be united into droves which could roam about the neighbourhood. No distance and no care could prevent them from roaming. Therefore no Yakut family of four individuals, at the minimum, could tend a drove of ten horses, which we may regard as the minimum. Moreover, the time necessary for the constant changes of position, protection, and care of such a petty drove is not a bit less than for one, two or three times as large. We may take it as a rule that the larger the drove, the more the power of the group which owns it is set free for subsidiary occupations, hunting, fishing, and handicraft, and the better they are provided with food and implements. The social habits of the horses, which love to live in large droves, were a natural cause of the union of their keepers. The size of the droves depends at last on the size of the pastures, which vary much in these districts. Hence the differences in size of the *sib* groups amongst the Yakuts, as they are described in the traditions, consequences of which are now to be found, and which astonish us by their apparent arbitrariness. The case was changed when they moved from the grand and unbroken steppes to the small expanses broken by forests, their dwelling of to-day. In the latter places, the droves are comparatively broken up. Hence the unions of the men cannot endure. This difficulty is intensified by the necessity of speed in changing position, and of frequency in movement from meadow to meadow, when the herds are large. Consequently the economic arrangements come into strife with the traditional instincts of the *sib* and the community. We may take a drove of ten or fifteen head, consisting of five mares, one stallion, one two-year-old, one one-year-old, and two suckling colts, for the minimum unit herd of horses. We may take for the maximum herd, for a district amongst the Yakuts, from three hundred to five hundred head. The minimum would hardly suffice to keep from distress a family of four souls. The maximum would allow a community of fifty souls to live in comparative ease. Within these limits, the effort of the Yakuts to sub-divide and scatter over the country must be bounded. Some of their traditions and customs lead us to think that once there was a much greater concentration of people and accumulation of wealth amongst them than now, and that they were spread over the country even less regularly than they are now. In their legends, large expanses of territory are spoken of as being empty, while in others large numbers of people, with their cattle, are described as existing.

Out of the minimum unit drove of horses consisting of five mares, one stallion, one two-year-old, one one-year-old, and two suckling colts, only one grown horse could be killed per annum, and the kumiss would not suffice for four souls. The requirement of kumiss is from 15 to 20 litres per person per day; one mare gives that quantity only in summer, and then she is considered a very select specimen; a middling one gives only half so much. In winter many are for a time not milked, and older ones, even if the food is adequate, give in winter not more than 3 or 4 litres a day. Consequently each person needs in a year from

5,475 to 7,300 litres of kumiss. One mare gives in a year from 2,000 to 2,500 litres, if she is milked the whole year around. Hence there is needed for a grown person two and a half milch mares, and for the three grown persons in a Yakut family, seven and a half milch mares.

The largest number of settlements contain four or five huts, with twenty or thirty souls. Occasionally one is met with in which there are forty or fifty huts, and some hundreds of souls. The winter houses for the most part stand separately, and at some distance from each other, but near to the hay-stacks. In this detail the influence of the later economic system dependent upon hay is to be seen. The summer dwellings, on the other hand, seem to represent more nearly the ancient mode of life. The summer group consists of many huts which stand quite close together, although not apparently in order, but distributed according to the convenience of water and the pleasantness of the place. They are distributed so that the *sibs* stand together, which is probably an ancient feature.

In the populous nomadic settlements of ancient times, whether in the south or the north, the Yakuts arrived at the basis on which their civil existence is based. This basis was the breeding of horses. There their best instincts were nourished; arts and handicrafts took their origin; songs and legends were composed; the system of their group-life was developed and strengthened. There they acquired the custom of enduring misfortune and conquering hardships in friendship and in common.

In everything that they did in those times we seem to see a reflection of the character of the powerful animals which then constituted their chief wealth and the basis of their existence. The breeding of horses demands special qualities of mind and special knowledge, especially knowledge of geography and physiography, very careful power of observation, and sagacity in the selection of places and in the regulation of the wanderings, so as to secure good adaptation to the facts of climate, season of the year, distribution of water, and depth of snow. It demands of the drovers cleverness, courage, decision, and a knowledge how to execute quick and complicated evolutions, so as to direct, arrest, or drive on to the proper place the obstreperous herds. Hence the custom of discipline and of group-wise action, which is to this day observable amongst the Yakuts.

*War and Blood-revenge.*—In all their legends and traditions, the stealing of women and cattle is presented as the cause of war. Not less frequently the occasion was the obligation of blood-revenge. The blood of a man, if spilt, required atonement. The children of the murderer took vengeance on the children of the murderer to the ninth generation. (See note E, p. 108.) In ancient times the responsible person having been captured, was not killed at once, but horribly tortured.

The Yakut meeting, with ceremonies for reconciling quarrels, has to this day a *sib* character. Gifts are made for the entertainment of the blood relatives, a small part of which comes into the hands of the injured

party. Many surviving customs show how strong was once the solidarity of the *sibs*, and how deeply the feeling of responsibility for the conduct of its members had penetrated into the sentiments of the *sib*. The Yakuts are very zealous for the honour of their *sib* comrades. They like to hear the praises of their tribe, sub-tribe, or *sib*. When they hear blame of the same, they feel sorrow. Hence the wonderful righteousness of the Yakuts within the *sib*, which often excites the astonishment of the observer. A man who is entirely indifferent when he sees quarrelling, cheating, robbery, oppression and extortion, will take them very seriously to heart if he sees them happen within the *sib*, or so that a *sib* comrade is the victim, especially if the guilty person belongs to another *sib*; on the other hand, they will often shield evident wrong-doing by *sib* comrades. Their tribunals are comparatively just in *sib* affairs, but between members of their own and another *sib* they decide on behalf of their comrade. One of them explained this very easily by saying that, in a certain case, the thing at stake should have been divided equally, but that one of the parties belonged to another tribe: "Could we, for his sake, harm one of our own?" In modern times, however, in the same measure as the *sib* groups have broken up the convenience of tending herds, and have scattered themselves more widely, the active exchange of mutual services between the members has declined. The need of mutuality has disappeared; they have come in contact more rarely; their feelings have become hardened, and there remains only a dim reminiscence of a common origin.

[p. 464.] *Political and Civil Usages.*—Mass meetings, or popular assemblies, are held, in summer, in the open air, not far from the meeting-house of the *sib*. The oldest and most influential sit in the first rank, on the bare ground, with their legs crossed under them. In the second rank sit or kneel the independent but less wealthy heads of households. In the third rank are the youth, children, poor men, and often women, for the most part standing, in order the better to see and hear. In general it is the first row which decides affairs; the second row sometimes offers its remarks and amendments, but no more. The third rank listens in silence. Sometimes the passions are aroused, and they all scream at once; but the decision of the question is always submitted to the first rank. It conducts the deliberation. The orators come from its ranks. Oratory is highly esteemed, and they have some talented orators. The first rank are distinguished for riches and energy. They can submit or withhold questions; but decisions are never considered binding until confirmed by a mass meeting. According to their traditions, in ancient times, a prominent *rôle* in these assemblies was played by old men, who must, however, have distinguished themselves, and won prestige, by good sense, knowledge, and experience. They decided questions according to the customs, and gave advice when the *sib* was in any difficulty.

[p. 478.] The divisions of the Yakuts are the *Ulus*, the *Nasley*, and the *aya-usse<sup>1</sup>* (= *sib*). Taking into account three provinces or districts, the author shows

<sup>1</sup> *Aya-usse* means in Yakut father (*aya*)—*sib* (*ussa*); *Rod* also means *sib* (*ussa*).

that two *Naslegs* consist of only one *ayu-usa*, fourteen of two, fifty-eight of three, fifty-nine of four, seventeen of five. The number of those that contain more *aga-usa* is small, but there is one each containing thirteen, fourteen, nineteen, thirty-four, and forty-three.

[p. 485.] *Land-system*.—Re-allotments of land between the *Naslegs* within the same *Ulus*, occur frequently; between the *aga-usa* of the same *Nasleg*, still more frequently; and between the allotments of the same *ayu-usa*, almost every year, with the purpose of equalisation. There is in every *aga-usa* a sworn functionary, chosen for a number of years, whose name is a corruption of the word deputy. Anyone, rich or poor, may be deputy, if he is a just and sensible man. He must understand all about the advantages and disadvantages of land. He has the difficult task of equalising the allotments. If he is incompetent, he makes mistakes. Sometimes he cheats intentionally, whence arise quarrels and fights. Sometimes the deputies fight, if they meet to decide a question between the *aya-usa* of a *Nasleg*. Each *Nasleg* selects an officer, who has the oversight over the deputies in order to allay their disputes. The Yakuts say that the allotments to the *Naslegs*, within a *Ulus*, ought to be readjusted every forty years. The allotment is made by an assembly of all the officers and head men. Within the *Naslegs* the re-allotment takes place at undefined periods, when some new necessity arises; for instance, from the necessity of setting off a glebe for the church, or when meadows have been spoiled by a freshet. Nowadays the deputies act only administratively to execute the decisions of the *sib* assembly. Individuals are constantly asking for a readjustment of allotments, upon all sorts of pleas. Leaving out of account the bits thus added or subtracted, it may be said in general that individuals dispose of their allotments without limit of time, and even give them in inheritance. In the north, a certain part of the meadows is apportioned to certain homesteads. These are regarded as the inalienable property of the householder. Only gores and strips which lie further off, or are purposely left for that purpose, are subject to division. By means of them equalisation is brought about.

[p. 489.] Pastures and woods almost everywhere are in the undivided use of all the inhabitants of a locality, without regard to the *aya-usa* or *Nasleg* to which they belong. It is true that rich men in many places have divided amongst themselves separate cattle ranges out of the common lands, and have fenced them, but their *sib* comrades look upon such land-grabbing with disfavour, and if the rich man dies or loses influence, they try to break down his enclosures and throw open the land again. There is a strife of interest between cattle owners and tillers; the latter enclose their lands; the former drive their cows home three times in the day. The enclosures make this journey longer. In general the *sib* group reconciles itself to the individual disposal of a plot of land which has been won by clearing woods or meadows, or of mowing lands obtained by drying up swamps and ponds, when it has been established by prescription, and even if the appropriated land is made inheritable, provided that the plot is not large and is all utilised by the

owner. But if the size is great, or the owner rents any of it, the *sib* asserts its rights. The only question then is whether the owner has won back from the land a remuneration for the labour and capital expended by him upon it. Often they undertake large clearings or drainages communally. Those who have a share in the land thus won are, first, those who lived there before : then all the *aya-ussa* of a *Nasleg* in proportion to their share in the work, and their need of land.

## II.—MARRIAGE AND THE FAMILY.

[p. 507.] *Ancient Type of the Family.*—It is established beyond a doubt that when the Russians came in contact with the Yakuts, polygamy existed amongst the latter. (See note F, p. 108.) They had a word for all the offspring of one man, and another for his offspring by a particular wife, if the interpretation is correct. If it is it would entail the inference that once the mother family existed amongst the Yakuts. This is confirmed by the tradition that many *sibs* with father descent, and even whole *Naslegs*, got their names from women. The Yakuts have no special word for the precise designation of a family group consisting of a man, with his wife and his children. The current word is *Kergen*, but this is an ambiguous word ; most probably it means *dwellers*. In answer to inquiries, the most various statements were given. The author heard this word used in the sense of all those whom the head of a household was bound to maintain, including temporary inmates.

The son of the house was no longer considered a *Kergen* when he married and established a house of his own, but all inmates and labourers, no matter what their status or relationship, are considered *Kergen*. [The author so uses the word ; he does not say members of the *Kergen*.] The marriage customs and legends in which there is reference to the stealing of wives in no distant past, seem to point to an origin of this house-group from slavery. There are even direct evidences of this, for an ancient word, synonym of *Kergen-Chahur*, meant slave or cowboy, and seems to have gone out of use on that account. In the *Kergen*, the younger are subjected to the elder, and all are subject to the head, whether it be a father, older brother, grown up son, or, in rare cases, a mother, if she is a clever and energetic widow. Custom does not seem to admit sisters or aunts. The head can give away and squander everything, if he chooses. He can even give away his children as labourers to outside persons.

*Exploitation of the Weak by the Strong.*—Such is the declaration of all Yakuts ; nevertheless, at the present time, these statements describe only a fictitious system. In fact, the Yakut family presents now a different picture. The subjection of the young and of women comes under a more general law : the subjection of the weak to the strong, and of those-who-have-not to those-who-have. The author knows of many cases in which the father, older brother, or the uncle forced the younger members of the family into marriage, or put them out to work for others under very hard conditions, taking to himself all the payment, and also

other cases in which the father disposed of the property of the son, took away from him his axe and canoe, and sold hay, mown and saved by him, completely independently. The son complained of his hard fate, but could do nothing. He also knows of a case in which parents sold their eight-year-old daughter to a Russian official who was travelling through. He saw and heard of many cases in which elders cruelly beat members of the household, especially women and children, yet he knows of an equal number of cases of an opposite character,—cases in which younger brothers played a more important rôle in the family than older brothers, in which a wife, unrestrained by the presence of strangers, behaved rudely to her sick husband, even beat him, and openly kept a lover in the house; in which a daughter, knowing that she was the only one in the house able to labour, did not obey her parents, did whatever she chose, refused an advantageous marriage, and went about with the young men before the eyes of all ; in which old people did not dare to sell a pound of butter or a load of hay, or to buy anything for themselves, without asking the consent of a grown son. All these cases were not considered by anybody unusual, and did not call forth from the community any more condemnation than cruel or unjust treatment of children.

*The Old.*—There is no such thing as any strictly patriarchal relationships, or any deep-rooted or cultivated feeling of respect for the old, amongst the Yakuts. A young Yakut said, “They not only do not feed, nor honour, nor obey, but they scold and often beat the old people. With my own eyes, I have more than once seen Yakuts, poor and rich, bad and good, beat their fathers and their mothers.” They behave especially badly with decrepit and feeble-minded parents. Their chief object in dealing with such is to wrest from them any bits of property they may still retain. Thus, as the old people become more and more defenceless, they are treated worse and worse. It was no better in ancient times. Force, the coarse force of the fist, or the force of hunger, rules in the modern Yakut family, and seems to indicate the servile origin of that family. Once the author saw how a weak old man of seventy beat with a stick his forty-year old son, who was in good health, rich, and a completely independent householder, who had just been elected to an office in the *sib*. The son stood quietly and did not dare even to evade the blows, but that old man still had an important amount of property at his disposition, and he ruled the family by the fear that he could deprive any recalcitrant one of a share in the inheritance.

*Antagonism between Parents and Children.*—In well-to-do families, where there is a great quantity of cattle, or where the right to large advantages from land, or the possession of well-established trade, provides an opportunity to win from hired labour, and so an important revenue is obtained, independently of personal labour the rule of the father and mother as proprietors, especially the rule of the father, is strengthened and maintained for a long time, namely, to the moment when the old people become decrepit and lose the capacity to comprehend the simplest things. Generally they die before that time. This state of things is maintained by the spread of Russian ideas and laws. In the old-fashioned Yakut

family, the economy of which is founded almost entirely on cattle-breeding, and in which constant personal supervision is required, thus making personal strength and initiative indispensable, the moment of the transfer of rule into the hands of the son is reached much earlier. It occurs still earlier in poor families which live exclusively by hand-labour and by the industry of the strongest and best endowed. The old people strive against this tendency in vain. The young people naturally strive to avail themselves as fully as possible of the results of their labour, and as soon as they feel strong enough, they begin to struggle for their rights. The parents are dependent on the sons, who could go away to earn wages. Hence they say: "It is more advantageous for us Yakuts, in this frozen country of ours, to have many children than to have much money and cattle. Children are our capital, if they are good. It is hard to get good labourers, even for large wages, but a son, when he grows up, is a labourer who costs nothing; nevertheless, it is hard to rear children." The author knew of cases in which wives put up with the presence of mistresses in the house, considering that an inevitable consequence of their own childlessness. The death of children is accepted coldly in populous districts, but in the thinly settled ones is sincerely bewailed. Sometimes they take to drink or to idleness when they have lost their children.

The greatest number of suicides are old people who fear a lonely old age. The treatment they receive fully accounts for this.

If the parents, on account of their own deficiencies, or the exceptional hard-heartedness of a son, have not been able to discipline him, then sooner or later a strife arises in the family. The women are in such cases more yielding. They are physically weaker and have scarcely any rights. As members of the *sib*, they have no rights to land, property, or independent existence. They surrender very soon. Most frequently they make no attempt to resist: there is no place for them outside of the family. It is another matter for the boys. They accustom themselves to form judgments on communal questions; they quickly acquire a knowledge of the rights of men, and become saturated with the communal spirit which refuses to acknowledge any privileges except personal superiority and work. In proportion as the quantity of labour accomplished by them increases, and in that way their cleverness and skill in the arts of life are proved, they demand more confidently and persistently that attention shall be given to their voices in the family, and that their wishes shall be fulfilled. If not they are not willing to perform the labour which is required of them, or do it so negligently, while tormenting their elders with constant reproaches, that the latter gradually yield. As soon as a father perceives this disposition in his son, he hastens to give him a separate allotment, if his own circumstances will possibly admit of it; otherwise the power inevitably goes over to the son. Sometimes the elders continue to hold a nominal authority: sometimes the son allows this consolation, as long as they live; but nothing is really done without the sanction of the actual sovereign of the family. The young man takes the place of the old one as the object of attention and obedience, and he makes himself master, as well of the

parents as of the labourers who are without rights or voice in the family. A man who was reproached for his behaviour to his mother, said : " Let her cry ; let her go hungry. She made me cry more than once, and she begrimed me my food. She used to beat me for trifles."

[p. 517.] *Prerogatives of the Head of the Family. Women.*—In a family in which the rights and powers have been reduced to equilibrium, so that all the relations of the members are established, the dominion of the head, whoever he is, over the labour and the property of the members is unlimited. The organisation is really servile. Especially pitiful is the position of the women, who play no rôle in the *sib*, and therefore can expect no protection from anybody. The author advised a woman to appeal to the *sib*, when she complained that her husband exploited her labour and that of her half-grown son : that he was extravagant and wasteful, so that he was likely to reduce them to pauperism. " The head ! " said she, " how often I have complained to him ! he listens and says nothing, and after that my husband is still more quarrelsome and more perverse." Another woman said : " The man is the master ; it is necessary to obey him ; he works abroad and we at home." This work abroad consists for the most part in taking part in the village assemblies and in constant loafing from house to house. It is true that the man acquires information about wages and prices ; but he also keeps to himself the monopoly of all external relations, and even for the absence of any of the housemates without his consent he demands a strict account. To acquire an extra gain, win food or money, or earn something by outside work is considered more desirable than to follow heavy daily labour which would maintain the life of the family from day to day. If the head of a household has grown-up children, the amount of work which he does is very insignificant. He works like the others only at the hay-harvest ; the rest of the time he wanders about, looking out, it is true, for the external interests of the family to which his care is now restricted, although formerly it extended to the *sib*. Inside the house he is treated with almost slavish respect and consideration. His presence puts an end to cheerfulness, the excuse for which is that he must maintain respect.

It is a custom, the reason for which seems to be the desire of the father not to lose power in the house, that he often gives allotments to his sons and takes into the house in their place a grandson, or a nephew, or a hired man. These persons, after they have lived some years in the house, and worked in the family acquire the same right to a part of the inheritance as if they had been children. The Yakuts say that a father may deprive a son of his inheritance, but the author never knew an example of it. He knew of cases in which sons sued fathers, alleging that the allotments which they received after many years' labour were not as large as they should have been.

[p. 520.] *The Descent of Property.*—A Yakut declared that a father would give equal shares of his property during his lifetime to his sons and his daughters, or that he would give larger shares to his daughters because they need more, since they go as wives to live among strangers, where, if they bring little

they meet with little respect. In fact, however, it is most frequently the reverse ; the sons get more. Houses and land go to them. These cannot be alienated into another *sib*, and are therefore excluded from female inheritance. When the parents die, all which was reserved for them during life goes to the sons. The married daughters get no part in it. Unmarried daughters rank as little children, and pass, until they are married, under the tutelage of their brothers, uncles, or other relatives of the father in the male line. If there are none such, the *sib* becomes the guardian, but even near relatives on the side of the mother are in no case permitted to be guardians.

Wills were unknown amongst the ancient Yakuts. The wishes of a dying person were sacredly executed, but they consisted chiefly of directions how and where the grave should be made, and what horse should be killed in order that it might be buried with the dying man, and what chattels should be buried with him. Nowadays the rich make wills, but their validity is not recognised unless they are written by a functionary, the scribe or the clergyman of the *sib*. This costs not less than a horse or a cow.

From the point of view of the *sib*, uncles, nephews, and male cousins of all degrees have a better right to the inheritance than a married daughter. A widow, if she is married a second time into a second *sib*, loses rights even to her children. The author knows of cases in which fellow-members of the *sib*, in no direct relation to the deceased, inherited his property for lack of relatives of his in the male line, while his own sister, who had married into another *sib*, received nothing at all. He mentions another case in which a man, having paid the marriage price for a bride, died. His *sib* comrades demanded back a part of the bride-price and divided it amongst themselves, on the ground that the man had never been her husband. Even if a father has given property to a married daughter during his life, or by will, it has not been done without suits and reproaches, because the property went into another *sib*. If there is no collision between family affairs and *sib* right, the *sib* unwillingly interferes with the former.

[p. 525.] *Birth Rate. Infant Mortality.*—According to the assertions of the Yakuts, the fecundity of their women is, on the average, ten children for one husband ; sometimes they bear twenty, or even more, and that is by no means so rare as amongst the Russians. The author knew of one case of twenty-two births, another of twenty, and another of nineteen. In most cases the number varies between five and ten.

The author gives a case of a woman married at twenty, who lived with her husband thirty years. She bore nine children, of whom seven died in childhood, one was born dead, and one daughter grew up. Another woman had nine children, all of whom died ; another woman had eight and lost them all. Another woman, out of ten, brought up two ; another brought up five out of twenty ; another brought up seven out of nineteen ; another, one out of six ; another, out of five, brought up all. Another woman, eighty years old, who could not tell at what age she was married, but thought that it was at fifteen, bore twenty-two

children, the last one when she was sixty years old. Eleven of them died in childhood.

The men, especially the rich, marry very young. The author knew a man of fourteen, who had been married two years. The ceremony had not yet been performed, but he lived with his wife in the home of her father, because the bride-price had been paid for her. They think that early marriages are unfruitful. Infant mortality amongst them is frightful, as the above statements show. This is due to the misery in which they live, on account of which they cannot give care to their children, even when they are rich.

[p. 527.] *Childbirth. Infancy.*—According to the ideas of the Yakuts, the woman has the greater share in procreation. A man whose wife gave birth to a monstrosity refused any responsibility for it, saying that he had had twenty-two children by his seven wives; this was the first by his eighth wife.

An old woman takes a new-born child and carries it immediately before the blazing fire. She sprinkles it with water from her mouth, the water sometimes being warm and sometimes cold, and then quickly washes it. Then she smears it with fresh cream. Generally the child never receives any other bath. If it does, it is at long intervals. They think that bathing exposes the child to take cold. They are not in the habit of bathing themselves. They often smear a child with cream, thinking this very advantageous to it. The Yakut mothers have not much milk. Not a child grows up without using a sucking horn. The mothers suckle the children long. The author saw five-year-old boys who demanded the breast when they saw their little brothers enjoying it. Children are often suckled at night to keep them quiet, but in the daytime they lie cold, damp, and neglected, while their uproar fills the house, the mother being employed in her household work. Some mothers employ a means of putting their children to sleep, especially if they are fretful boys, which often causes spermatorrhea.

[p. 529.] When a child begins to sit up, which takes place at the end of three months, it is no longer called a baby, but has another class-name. In ancient times they gave it its first name at this point of time; it got a second one when it could draw a bow. Their babies creep at six months, and stand and walk at a year. So after they are six months old, they crawl all over the floor of the house. The Yakuts think that a child which does not yet understand human language understands the talk of the fire, the singing of birds, the language of beasts, lifeless objects and spirits; but that he loses this gift when he acquires human speech. This superstition may be due to the habit of children to stay about the fire, the warmest and pleasantest place in the house, and also the most interesting, where a child stands staring at the flames with his big black eyes and listening to the hissing and snapping of the fire. Their children look the prettiest to Europeans when they are from five to ten years old, because then they are most like our children; but then they are by no means sprightly or enterprising, and they are excessively obedient. Even when playing, they do not make half the noise and movement which our children make. When there are several in a

family, you may not notice their presence for a long time. They hide themselves away in the corners, or sit in a ring on the floor, busy with something or other, talking, quarrelling, telling stories, singing,—but all of it only half aloud. They are hardly ever so far carried away as to cry aloud or to sing aloud. At a threatening shout of a grown person, they come to silence and scatter. Only when they are alone do they become lively. This happens in summer, in the woods and groves, and in the fields. They are very fond of assembling to play there.

[p. 536.] *Wedding Ceremonies.*—On the occasion of a wedding at which the author was present, the bridegroom's procession arranged to reach the house of the bride at dawn of day. At that hour the guests were assembled at the house. The groom and the go-between each led a horse loaded with fresh meat. A lad on horseback, without saddle, galloped out at full speed to meet the groom's procession; but when he was about forty fathoms from them, he suddenly stopped his horse, turned, and rode back again. One of the groomsmen followed him, but not being able to overtake him, turned and rejoined his own party. When the groom's party rode into the court, the father of the bride held the stirrup for the father of the groom; the others of the bride's party, according to rank and order, performed the same office for the members of the groom's party. The young people carried into the house the meat and other things brought by the groom's party, but the groom remained at the gate, turning his face to the east, and looking at the spreading dawn. He crossed himself zealously and made obeisance. When all had taken their places, the cousin of the groom, with a whip in his hand, which he had not laid aside at all, went out and conducted the groom into the house. The latter came in with his head bent down and his eyes covered. He was very young, and deep emotion was visible on his face. The father and mother of the bride met him with the sacred images in their hands. They blessed him. At the same time the one who was conducting him, seized him by the neck from behind and bent him down three times at the feet of the parents of the bride. After that, the groom with his cousin brought in still more packages of meat and laid them there before the fire. The groom uncovered one of the packages, in which was enclosed the head of a horse cooked whole; he picked out from beneath the eyes three bits of fat and cast them one by one on the fire. After that they carried the horse's head away and laid it in the chief corner on the ground; but they led the groom into the corner on the right, where they caused him to be seated with his face to the wall, and his back to the people, on what they called the last bunk to the right. On the corresponding one to the left, behind a curtain, sat the bride. They both remained in these places the whole time, in their best garments, including cap and gloves, and he even never laid his whip out of his hand. All the groom's party in like manner kept on their best out-of-door garments, in spite of the heat of the blazing fire. The parents of the bride were dressed in the same manner. The rest of those present a little later laid aside their out-of-door garments.

The entertainment began. The feasters were all seated in an established order which never varied to the end of the entertainment. A distant relative of the

bride, in full out-of-door dress, acting as servant, gave to the father of the groom a wooden cup full of kumiss; then he gave one to each of the companions of the groom. Having held the cups a little while, they gave them back to him, that he might pour out a little on the fire. Then they received the cups again and drank a little. The father of the groom then gave his cup to the father of the bride, who drank a little and gave it to his wife, who passed it on to their other relatives. Then the uncle of the groom gave his cup to the father of the groom. He gave it to the father of the bride, and so it went the rounds. Then they served breakfast of cold boiled meat and tea with milk and sugar, and a piece of rye bread for selected ones amongst the guests. Soon after that they killed an ox and a horse. While some of the young people dressed these, others prepared the kettles, and brought wood and water, and melted ice in the neighbouring hut. They boiled the meat in the presence of the guests, in big iron kettles; then they laid it on trestles before the fire. First of all, of course, they boiled the viscera, the entrails infused with blood, the heart, the stomach, etc. In cutting up the animals, they took care that the shin bones should remain unbroken. (See note G, p. 108.) When the meal was ready, the young people of the *sib* of the bride, although they were persons of entirely independent position, undertook the service of the guests. They spread hay on the ground before the visitors, and spread on this the skins of the mare and ox which had just been slaughtered. "Such was the table of the ancient Yakuts," they said in explanation.

The author, when he saw the immense pile of fresh meat, which was laid before each one, asked, "Do they expect them to eat all that themselves?" He was answered with a merry laugh.

Women were not admitted to the table at all. They took their portions off into the corners, where they ate them. At the beginning of the meal, the master of the house gave to each one a glass of vodka. The young and the poor got less, sometimes very little indeed, but the intention was to pass by nobody. Then at a signal given by the master of the house, each one drew his knife and set to work to eat, which they did with a uniformity of movement as if they had been drilled to it. After a while, the father of the groom, rising with a choice bit of meat in his hand, made an appropriate speech and gave the meat to the father of the bride. This he repeated a little later with the mother of the bride, then with her other relatives, and then with the most important members of her *sib*. Then the other companions of the groom complimented the parents and relatives of the bride in the same manner. The point of all the speeches was, "We are now related to each other; we will hereafter live in friendship and concord." This exchange of compliments became noisy and irregular. The meat which they could not eat was made into packages by the women, to be taken home as gifts for those who had not come to the wedding. In the evening, the supper was conducted in the same manner. Pieces of meat were exchanged with speeches and good wishes. After supper, the ceremony with the kumiss was repeated. Before supper, they drank vodka together. One would drink a little from his cup and then give the

rest to another whom he desired to compliment. On the second day, all was repeated. They slaughtered a cow. All was the same except that at supper a blind singer sang, whereupon one and another made gifts to him of pieces of meat just like the treatment of a bard, of which we find a description in the *Odyssey*. Then the young people played games and practised feats of strength and skill.

On the third day the dinner was served early. The bridegroom's party had thrown open their out-of-door garments, on account of the stifling heat produced in the hut by the number of persons, the blazing fire, and the steam from the kettles. They had not been invited to do so, but the circumstances fully excused them. They now re-fastened these garments and went away. The bundles of meat were brought in, cut up, and divided amongst the relatives of the bride so that everyone should have at least a small portion. This was the meat which the groom's party had brought with them, and which had been stored in the store-house. It was carefully examined and valued. In the evening the groom's companions came back. During this absence they had been entertained in a neighbouring hut to which the mistress of the bride's house had previously sent the necessary supplies. They were met in the court upon their return with the same ceremony as at first. After supper games were played again by the young people, and at last a long legend was recited by the blind bard.

It was not until the fourth day, after dinner, that the relatives of the groom prepared to depart for good. When they had mounted their horses, a big wooden cup of kumiss was served to each one of them, and then the whole *cortège*, in the same order in which it had arrived, the father of the groom at the head, and the groom last, were escorted by the relatives of the bride around the three hitching posts for horses, which were set in the middle of the court. They went about these posts three times in the course of the sun. Each time, when they had completed a circuit, they stopped, and each horseman poured out kumiss from his cup on the mane of his horse. When they had drunk the remainder of the kumiss and returned the cups to the escort, they departed at a gallop through the open gateway. The solemn ceremony was then considered ended, yet this was only half of the wedding. It is true that from that time the bride and groom considered themselves man and wife, but not until the whole bride-price had been paid, *i.e.*, sometimes after two or three years, did the husband conduct his wife to his own house. Then they again celebrated the same feasts three days long, in the same manner, the groom sitting again for the whole time in one corner, with his face to the wall, and the bride in another, behind a curtain of soft leather.

A Yakut wedding nowadays strikes us as remarkable on account of the silence, and the poverty of the ceremonies. There is no singing, no allegorical representation, and no dancing. They say that formerly a shaman was present, who invoked on the pair the blessing of the heavenly spirits. In the southern districts the wedding has undergone Russian influence. The elements that were connected with horse-breeding have disappeared. Among the poor, the mare's

head, which in old times was worshipped by the young people, has disappeared also the kumiss and all the ceremonies connected with it. Brandy and vodka have taken its place; tables have taken the place of the skins spread on the floor; instead of the exchange of meat, they touch their drinking cups and kiss. In some places they even try to bring out the bride and groom from their corners to sit at the table. This last feature as yet makes way slowly, and one of the most characteristic features still is the non-participation of the bride and groom, as if the others wanted to forget them. A share of the food is served to them, but the others do not talk with them, do not mention their names, and the bride is carefully shut away, while the groom tries to escape attention as much as possible.

*Bride-price.*—The greatest part of the expense of a wedding falls on the groom. It is an essential part of the payment for the bride. The expense varies from a few rubles to two thousand rubles; the average is perhaps one hundred rubles. This expenditure would be beyond the means of the majority, if it were not that a large part of it comes back under the form of the bride's dower. If the total payment made by the groom be divided into its parts, the part spent for entertainment is spent by the groom without return; but the payment to the parents of the bride, and the gifts to her relatives, are restored in the gift with her. She brings household furniture, garments, silver articles, the stipulated number of mares and cows, corresponding to the number of animals contributed by the groom. She also brings colts and calves voluntarily contributed by her parents and not mentioned in the contract. She also brings gifts in the shape of meat and butter. Each wooden cup which she brings ought to contain a little butter. She also brings one fox skin and nine ermine skins, or at least one ermine skin. This is hung up over the bed where the unmarried women sleep. Later it is carried into the store-house, where it is carefully preserved until the first child is born; then they carry it into the wood or give it to the shaman. At any rate it disappears.

Either under pretence of getting ready the bride's outfit, or on account of her youth and inexperience, the parents do not give their daughter to her husband immediately after the marriage, even if there has been a religious marriage, and the bride-price has been paid, and they have agreed to do this soon. Formerly the delay was often four or five years, and the custom of marrying children, even when very young, existed still earlier. During all the delay, the husband visits his wife at his leisure, but every time he ought to bring a gift to the wife's parents, a quarter or two of meat, a fox skin, or some other present. These gifts are a very unwelcome addition to the bride-price. When the time comes for the bride to go to her husband's house, she is very coldly received by his relatives if she brings less than was expected. If she brings less than was agreed upon, quarrels arise. Often there is a complete rupture, if the marriage has not taken place in church. In the latter case, they boycott her and she suffers all kinds of petty household persecutions which poison her existence.

[p. 549.] The bride-price is shared by the parents, older brothers, uncles, and guardians of the bride, and, in the case of orphan working girls, by the master. Each gets something, be it ever so little, as a recognition of surrender by him of a claim on the woman. Not a single well-bred Yakut girl would consent to go to her husband without a bride-price. She would be degraded in her own eyes and according to the views of her people. It would mean that she was not worth any price, was friendless, or an outcast. It can be understood, therefore, that the Yakut women look down upon the Russian women, who, as they say, pay somebody to take them. Even young widows who have returned to their families are paid for, though at a lower rate than maidens. Older widows who have lived for a time independently with a minor son, or as work-women, marry without a bride-price; but the Yakuts have an original comment on this. They say that "she wanted to exploit herself," or they say that she has been paid for once, and that if she marries again, nobody loses anything. The author asked one of them, "Who lost anything when a maiden was married?" "The parents," said he. "They had the trouble and expense of rearing her. They ought to obtain an equivalent for that. Besides that, they lose a worker out of the house. How is it that you Russians do not understand that?" "But," said the author, "if a son is married, they get nothing, and even give him something." "The son is another thing," was the reply. "In the first place, his labour produces more for his parents before his marriage, and then he doesn't go away; he remains in the same *sib*; he is our man; he will bear his share of taxes and burdens." This presents the current view of this matter amongst them. "We fed and reared," they say, "and others are to get the benefit. We will take something for the expenditure."

### III.—MARITAL USAGES. THE STATUS OF WOMEN.

[p. 552.] *War Captives and Stolen Women as Brides.*—In ancient times, the Yakuts had a name for a man whom a defeated hero gave to his conqueror as a compensation for sparing his own life. Such persons later were in fact slaves and were included in the gifts with a bride. If they were females, they became concubines of the master. Such a slave person was called an *enne*, and this word has now come to be used as an adjective for whatever is given with a bride. In the legends, the ancient heroes are represented as coming home, after their adventures, with a wife and a rich dower (*enne*); but this dower took its origin probably in very ancient times, when the present system of exogamic marriage began first among the Yakuts. All the evidence goes to show that foreign-born wives were originally captives in war, in connection with whom, of course, there could be no dower. Their own tradition is that formerly, if a man who was hunting in the forest with others saw a handsome woman, they watched to see where her husband went to hunt. Then they fell upon him, killed him, and took away his wife. If they could not take her by force they took her by stratagem, enticing her out of her house by a call to help her husband bring home his game.

Then they carried her off by force, in the same manner in which they brought home war captives. In their epic poetry, the stealing of women appears as a constant motive. The heroes help each other to find women outside the tribe, and they obtain them as payment for their heroic deeds, or for help given to others. In all the narratives about wars, maidens fall to the victors as prize or ransom (*enne*). A legend is mentioned in which three Yakuts, being offended by Tunguses, undertook war against them. The latter begged for mercy and offered a choice of three maidens. The Yakuts came to terms with them and made a wedding. The author thinks that in the wedding ceremonies of the Yakuts we must recognise a survival of a line of conduct which was once a completely consistent and well rounded ceremony for the conclusion of peace. Whether the stealing of women was the cause of the preceding hostilities, or the relatives gave the woman voluntarily in compensation for a man who had been killed, or for stolen cattle, is immaterial. In any case she was regarded as *booty*, and the wedding resembled a *peace negotiation and conclusion*. To this day, both the parties who come into relations with each other at a wedding behave to each other during the feast with respect, yet still with a certain concealed distrust and jealousy. They are constantly on the look-out lest the others get the better of them in the gifts, or cheat them. The groom's party do not move at all; their horses are saddled, as are also those of the bride's relatives who have come to the wedding. A Yakut who was asked why he did not unsaddle his horse at a wedding answered, "Differences are apt to arise at a wedding."

The more unequal are the powers of the families, or more properly, the *sibs*, which are united by a wedding, the more the material interests of the weaker party suffer. The payment to overcome the opposition of the bride, that is to say, her love to her blood relatives, is increased. It is noteworthy that during the wedding, custom strictly forbids the bride and groom to see each other. The bride is permitted, indeed, being hidden herself, to look at the groom when he goes to water his horse; but it is regarded as improper for the groom to even make an attempt to see the bride. Neither ought his companions and blood relatives to see her.

If the wedding has much in it that is parallel to the conclusion of a peace, the demand in marriage, and the "investigation" which precedes it, remind us at all points of a military reconnaissance. A man who goes about looking for a wife keeps silence, and enters into no relations, even of conversation, with those he visits. The girls laugh at him and the young men (her friends) treat him with jealous satire.

In ancient times, the parents often paid a bride-price for a girl three or four years old to be the wife of a son. They took her and brought her up that she might become accustomed to the family of her husband. Sometimes they became attached to her and the couple lived happily together. They slept together from childhood, considering each other husband and wife; but often they regarded each

other "like the devil." If either one died before the marriage, an endless quarrel began about the return of the bride-price. The Russian clergy now refuse to celebrate these marriages.

*Betrothal.*—To accomplish a betrothal, three male relatives of the groom go on horseback to the house of the desired girl. Upon entering this, they sit down in the place of honour, where they sit talking about indifferent matters, and watching what goes on in the house for one or two days. Then they pack up their things and place them on their horses, and when quite ready to leave on their journey, they return into the house. If the groom has come with them, he now stays outside. The go-betweens sit down again and wait awhile. Then the oldest of them, in silence, throws upon the table the skin of a fox. Then the father of the bride puts on his cap and sits down behind the table in the place where he sits at the wedding, and asks them what they want. They in turn, calling the bride a young mare, or a valuable beast, conduct a negotiation, asking whether she is for sale. When they get an affirmative reply, they agree upon the amount of the bride-price, the dower, the time of the wedding, the time when the groom shall have his wife, the mode of paying the bride-price, and all the details. All is negotiated with great pains in order to avoid future disputes. Then the guests speedily depart. Sometimes fox skins, vodka, and money are left on the table when they go out for the first time; and if, when they return, they see that these things have been taken away, they proceed to negotiate the terms. The bride has a very small share in this negotiation. Sometimes they ask her whether she is willing, but this is a modern innovation. If a man meets with a refusal of the girl he asks for, he usually insists that another shall be given to him in the same house, if there is another there. The Yakuts consider it an injury to meet with a refusal, and especially in the case of a proposal of marriage. They think it improper to send the go-betweens, under any circumstances whatsoever, within a year to a girl who has given a refusal to a man.

[p. 558.] *Exogamy.*—A wife is always taken from another *sib*. Even in the south, until the present time, this custom is strictly observed. In the north, the author knows of but one case of a marriage within the *sib*; but all condemned that marriage, and when the new-made wife, after the wedding, became blind, they ascribed this calamity to the breach of the ancient custom. Well-to-do men will not take a wife even within the *Nasleg*. Custom is even unfavourable to the arrangement when the brother of the wife is near at hand, even though he belongs to another *sib*. They say, "A girl, if she lives in her own birth-place (after her marriage), is not happy;" also, "A happy daughter marries far away from her birth-place;" also, "It is well to have water near by, but relatives far off." If we may take it for established that the first wives from abroad were war captives, then the custom to take wives from afar is easily understood. Wives could not well be stolen within the circle of connected *sibs* within which the ancient nomadic wanderings took place. The author thinks that the notion of any peaceful evolution of exogamic marriage amongst the Yakuts, out of a more primitive

form, must be absolutely rejected. Their sayings and traditions, and the survivals of wedding ceremonies, agree in proving the closest relation of marriage with war and the stealing of women. Yet whether the effort to find wives outside arose as a contingent consequence of war, or was a cause of war, or a thing which arose independently in its own good season, under the influence of physiological or economic motives, is hard to decide. The Yakuts engaged in breeding animals could observe in their animals the advantages of crossing with females of another blood-group. Such unions were more fruitful and the progeny were stronger. Besides that, the stallions, when they chased out of the herds the young rivals born there, and very eagerly introduced into the herds mares from outside, must have incited the Yakuts to imitation. The economic motives, such as the gratuitous labour of slaves, and the introduction of horned cattle, which made possible the existence of smaller societal groups with a denser population at particular spots, encouraged the tendency to maintain exogamy.

*Ancient Endogamy.*—The author is convinced by all his means of information that there was formerly an altogether different organisation of the family and system of marriage, from those which he at present finds in existence. It is possible that both forms existed for a long time, and the more ancient one disappeared so recently that the people have still a fresh recollection of it. A Yakut said, “In ancient times the Yakuts had many wives, and long before that, your younger sister was your wife; your mother possibly; the wife of your brother possibly.”

Some, when asked, knew nothing of this; others asserted that sisters formerly were wives, but mothers never. Other testimony also was obtained that formerly marriages took place, not only within the *sib*, but even between very near relatives. They say that when God made Adam and his wife, the latter bore seven girls and eight boys. Each man, except the youngest, had a wife. The latter asked God what he should do for a wife. God answered, “If you cannot get along without one, sleep secretly with the wives of your brothers.” This is a current legend amongst them, and agrees with other current sayings and notions. We may suppose that, even if it is borrowed, it took root in the memory of the people because it corresponded with dim reminiscences out of their own antiquity. They say, “When the migration took place from the south, the Yakuts took their own sisters to wife, since there were no women of other tribes at hand.” “The ancient Yakuts took wives in this way: if one of two brothers had a daughter and another a son, the children became man and wife.” “In ancient times, when a youth was able to draw the bow, he took one of his younger sisters to wife and went afar off, where he built a house.” “In ancient times, if a sister, whether older or younger, was married to a man of another *sib*, her brothers never let her depart as a virgin. If she went away as a virgin, they considered that they had lost their ‘luck.’” The expression which they use here for the treatment accorded to the sister is the one now in use in the sense of sex-intercourse, but it means exactly “to make one a mistress of the house.”

Incest, which according to the notions of Russians, is such an abominable thing, rather causes laughter than horror amongst the Yakuts. Cases of such unions are met with more frequently amongst them than amongst Russians. The author knows of two cases in which brother and sister lived together in wedlock, about which everybody knew. The authorities of the *sib*, frightened by the outcry about another case, made it known to the local Russian clergyman. In one case, children were born. He also knows of a case of wedlock between mother and son, and of another in which two brothers lived with the same wife. In their legends and folk tales, we see that in ancient times the feeling of attachment in the brother and sister tie was far more strongly developed than in the marriage tie, or even in the parent and child tie. The first of these prevailed over all others. They often call the wives of the legendary heroes "sisters," using a distinct name for older sister, and another for younger sister. Almost every hero, whether good or bad, has by his side sisters, who act as his protectors and comrades. The folk tales contain many cases of the devoted service of sisters to brothers. It is a custom of long standing, which still exists, that two brothers of one *sib* marry two sisters of another. It is noteworthy that now at a wedding the sister of the bride keeps her head carefully covered all the time. It is considered a great impropriety that the groom or one of his comrades should see her hair.

[p. 562.] *Terminology for Family Relationships.*—Among the many difficulties of describing the ancient marriage system, one arises from the fact that the ancient words for family relationships had different senses from what the same words have now.<sup>1</sup> For instance, the Yakuts have no word for the general sense of brother or sister. If they must have such a word, they use the Russian word. They have special names for older brothers, younger brothers, older sisters, and younger sisters. These words, with some attributives which are generally omitted in vituperative speech, are used to address uncles, nephews, aunts, grandchildren of different grades, and even step-fathers and step-mothers, although the two latter are commonly called father and mother. It follows from this that the family falls into two groups—those who were born earlier and those who were born later. These groups form the background of the terminology for family relationships. The majority of other words for relationship are constructed out of these. As far as the author has observed, the names derived from the denominatives for the younger group are given only to blood relatives and *sib* comrades. For the relatives by marriage, there are special denominatives, amongst which the division into those born earlier and those born later is not so strictly carried out. He thinks that in the beginning, the Yakuts had no words at all for brother or for sister, and that the words now used for younger brother, younger sister, etc., were terms, not so much for family relationships, as for *sib* relationships, and meant simply older or younger *sib* comrades. It is impossible now to determine whether a certain word ought to be translated "older brother," "older uncle" or "older nephew," and so of the others. If now a certain

<sup>1</sup> See the note on p. 109.

denominative may be interpreted in the sense of a *sib* comrade of earlier birth, then the tradition that brothers married sisters, with especial emphasis on the fact that they were younger sisters, loses the apparent preciseness of its meaning. The tradition would then refer, not so much to incest as, in a general way, to endogamy. It would then indicate that at a certain moment in the development of endogamy, the custom existed that men should marry women born later than themselves. We have no hope of finding out in view of the uncertainty in the sense of the terms of relationship, whether there was any limitation in respect to sisters or daughters of the full blood. In many denominatives, we seem to find indirect evidence that such further limitations existed.

Boys ten or twelve years of age do not eat with their sisters; they do not lie down to sleep with them on the same bed. The boy is given a separate bed, which involves a special expense. They do it apparently not from modesty, but in obedience to an ancient prohibition in the nature of a taboo. These very sisters, however, may go completely naked, entirely untroubled by the presence of their grown brothers, and they carry on with the latter sometimes conversations and jests which would cover with embarrassment the most cynical European man. It is possible that these restrictions arose later, for the sake of protecting virginity, the loss of which, when exogamy came to be established, began to have influence on the amount of the bride-price. However that may be, they prove that a necessity was felt, at a more or less remote time, of adopting this with other measures to establish a physical separation between brothers and sisters, so that we must regard any union of the two, which may at one time have existed, as a passing phenomenon. It is needless to speak about youth of the same *sib* but another family. Irregular unions between these are even now an ordinary phenomenon.

An analysis of the terms of relationship amongst the Yakuts does not show who might, or who might not, under endogamy, be husband and wife. It would be interesting, with a view to this question, to examine the mistakes in the application by the Yakuts to *sib* comrades of the denominative which means those persons whom one might marry. Some of them said that this denominative could not be employed within the *sib*; others would not allow it any place in the genealogical schedule, although they admitted that such a term of relationship began to be applicable, as some said, in the ninth generation, and others, in the fourth. Others of them constantly confused this term with another, by which they indicate the third degree of blood relationship, corresponding to our grandchild. The Yakuts employ the term "child" or "my child" not only to their own proper children, but also to the children of brothers, or of sisters, or even to brothers and sisters themselves, if they are very much younger. They have not, therefore, in their genealogical terminology any words for son and daughter which testify directly to a blood relationship between specific persons. The word which we translate "son" strictly means "boy," "youth," "young person." It was formerly used as a collective for the body of warriors, or the young men of the

tribe or *sib*. With the addition of the possessive "my," this term is addressed vituperatively by old men not only to their own sons by blood, but also to any young males who stand in any relationship to them. In a narrow sense, it may be addressed to one's own son, or, with a prefix, to one's grandson, and then with other proper prefixes, to grandnephews of the second and third degree. The terms for females are entirely parallel in sense and use.

The lack of words to distinguish between "son" and "boy," "daughter" and "girl," is not due to the poverty of the language; on the contrary, their genealogical terms astonish us by their abundance and variety. Not only do they distinguish those of earlier and later birth, but they have a special denominative for younger brothers, which is used only by women. They have a special name for the wife of a husband's older brother, and another for the wife of the husband's younger brother, and other similar peculiarities which seem incomprehensible, not only to us, but also to the Yakuts of to-day.

In view of the great abundance of the denominatives for relationships which we should regard as relatively remote, of the lack of special terms for "son" and "daughter," and of the confusion of these with more remote degrees of relationship and likewise with the expressions "boy" and "girl," which they use to indicate especially sex and point of growth, we infer beyond a doubt that, at the time when the present system of genealogical relationships took its origin amongst the Yakuts, *the precise genetic connection of any given boy with his parents had no especial denomination*. All the old people in the *sib* called all the young people in the *sib*, up to a certain point of growth, by the same denominatives. The notion of the immediate relationship of the children of a given pair to that pair was not sharply defined until a later point of time; then first was there a denominative for it. It is impossible that this was a consequence of the education in the same place and in the same manner, by the whole horde or *sib*, of all its children; and also that it proceeded from, or accompanied, the extremely unsettled and unclear marriage relationships. In favour of the former conjecture is the fact that the *sib* still considers itself in some sense the proprietor of its children. For instance, it does not allow the immediate parents to alienate a child, especially a boy, into another *sib*, without its express consent; also, when a widow marries a second time into a second *sib*, the grandfathers, uncles, and even more remote relatives take away her boy, if not at once, then at least when he grows up and becomes able to labour, and still again, the strange custom of a fictitious stealing of children in these families in which several successively die, and of giving them to others to bring up, seems to manifest a notion as if the appropriation to one's self of one's children was an unlawful act, worthy of punishment.<sup>1</sup>

<sup>1</sup> The stealing of children is accomplished with certain ceremonies. The mother, although she herself asks her friends to do the stealing, ought not to know the moment when it is executed. In the place of the stolen child they put a puppy or a doll. It is required that the child should be taken out through a window, and that the story should then be set afloat that he was stolen by passing travellers. (See table of relationships in the Polish edition.)

[p. 567.] In favour of the explanation of the vague relationship between a child and its parents by the vagueness of the marriage relationship is the analysis of the terms "father," "mother," "husband" and "wife," and also some ancient customs and existing *mores*. There is no name for "father" amongst the Yakuts, which admits of a natural and simple explanation, like the word for "mother." The word for "mother" means "the procreatress," but the word for "father" should be translated "older man." When the author asked questions to clear up this point, the persons inquired of asked him to indicate more precisely whether the person he meant was born earlier or later than the one named; and this they did with respect to women as well as men. They explained that the word in question meant "father," but that in some phrases it was necessary to understand it as "elder." They have a corresponding word for "older sister" or "older aunt"; yet when the phrase refers to the point of growth, this word means only "a woman who was born earlier." The lack of a special name for "father" is the more strange because the Yakuts have special terms for more remote relatives up as far as the great grandfather, although even then the female origin is more clearly expressed than the male origin. This vagueness in regard to the male blood tie, side by side with the definiteness of the female connection with the offspring, is very significant. If, in connection with this, we also remember that the *familia*, in the Latin sense of the word, bears a name which means "mother-sib" (*ye-usse*), and that many "father-sib" (*aga-usse*) of the present time, and even *Nasleys*, according to tradition, take their origin from women, and that one of the favourite motives of the Yakut folk tales, on a line with the search for a wife, is the search for a "father," then we have reason to devote particular attention to this class of facts. It is a current fact in the legends that the heroes do not know who their fathers were.

The author does not venture to draw more positive conclusions with respect to the ancient marriage institution, but he thinks it safe to assume that it was, in its origin, entirely different from the present one, not only by virtue of the fact that endogamy then prevailed, but also on account of the peculiar relations between the sexes. Unions between them, inside of the *sib*, were exceedingly free and non-permanent. The children could know only their mothers, and they could know them only up to a certain point of their own age; after that they forgot this relationship. It was supplanted by a feeling of belonging to a certain group. Within that group there were only "men" and "women," older or younger than the person in question. There are out-of-the-way places amongst them now where the current word of the language for "wife" is unknown; they meet it with laughter. The words they use mean "woman" or "old woman" or "mistress of the house." A word for "husband" exists nowhere amongst the Yakuts. The current word means properly "man." They have no words for "divorce," "widow," or "widower." The first is entirely unknown to them. They have adopted the Russian word for "widow," but they apply it to every bereaved person. One of their proverbs is:—"A woman without a man is the same as a herd of cattle

without a master." A widow with her property and her little children passes over to the brothers, uncles, or nephews of the husband, and in all probability, in ancient times, she not infrequently became the concubine of one of them. There is proof in the customs that there was a time when, even during the life of the husband, it was demanded that measures should be taken against eventual claims of the nearest relatives of the men upon wives who had come from abroad.

*Relatives-in-law.*—There was a well known custom according to which a bride should avoid showing herself or her uncovered body to her father-in-law. In ancient times, they say, a bride concealed herself for seven years from her father-in-law, and from the brothers and other masculine relatives of her husband. The young people lived in the left, or women's half of the house, and behind the screen, which was always found in the ancient houses. Looking through a crack in this, she watched until her husband's male relatives were busy, and then, concealing herself carefully behind the chimney [which stood free in the middle of the house], she went out into the yard, rarely through the door of the house, more frequently through the stable. The men also tried not to meet her, saying, "The poor child will be ashamed." If a meeting could not be avoided, the young woman put a mask on her face. Sometimes she died before her father-in-law had seen her face. Not until then was it proper for him to look at her so as to know whether she was pretty or what she was like. Nowadays the young wives only avoid showing to their male relatives-in-law the uncovered body. Amongst the rich, they avoid going about in the presence of these in the chemise alone. They put on a short gown. In some places, they lay especial emphasis on the fact that it is a shame for young wives to show their uncovered hair and feet to the male relatives of their husbands. On the other side, the male relatives of the husband ought to avoid showing to the young wife the body uncovered above the elbow or the sole of the foot, and they ought to avoid indecent expressions and vulgar vituperatives in her presence. Nevertheless, the author heard nothing amongst them about the status of the daughter-in-law. That the whole custom which has just been described is not a manifestation of respect for the husband's relatives, but a prudential device, is to be seen from the fact that nothing of the kind is observed in presence of the mother-in-law and old women. Also that those observances are not the result of a specially delicate modesty is proved by the fact that even young girls constantly twist thread upon the naked thigh, unembarrassed by the presence of men who do not belong to the household; nor do they show any embarrassment if a strange man comes upon them when uncovered to the waist. The one thing which they do not like, and at which they show anger, is that such persons look carefully at their uncovered feet. The former custom of peculiar behaviour towards male relatives-in-law is gradually being abandoned. Also the former simplicity of their *mores*, with lack of shame in uncovering the body, is disappearing.

In all probability, endogamy did not at once give way to exogamy. Both forms long existed and competed with each other for exclusive validity. It may

be that the first captive or slave wives were a violation of some customs of the *sib*, and that they concealed themselves in the beginning from all the *sib* relatives of the husband, since these only endured them and did not recognise them. Unfriendly behaviour toward the wives within the bounds of the *sib* undoubtedly occurred.

*Reasons for Polygamy.*—The Yakuts gave up polygamy at the beginning of the last century on their conversion to Christianity. They petitioned the government against the abolition of polygamy in the following terms : “ Rich Yakuts had many wives for oversight of the numerous houses and cattle which ordinarily were in different places ; for wives took more zealous care of property than indifferent hired persons. Hence the housekeeping was improved and the property was increased under polygamy.” The Christianised Chukches gave a similar justification for polygamy. They said that they could not get on without a plurality of wives, because, for fear of contagious diseases, they were compelled to break up and scatter their herds of reindeer. [A wife was required for the care of each sub-division.]

According to the official figures of 1889, there were amongst the Yakuts 110,982 men and 110,221 women. Hence polygamy was impossible for the great mass of the people.

The price of a bride was formerly not less than ten head of cattle. Middendorf says that in his time the price was ten head of cattle of each kind, ten mares, ten cows, ten stallions, and ten bulls, from 500 to 5,000 rubles in value. Hence to have more than one wife was a privilege of the richest.

*Status of Women.*—A wife, according to the notion of the Yakuts, is above all things a household labourer; she guards and increases the property; she has no rights in the family; she can punish a disobedient child, and that is all. She has no property; her husband has the right to squander even her dower to the last head of cattle and the last chemise. They more often beat women than children. Outside of the family, the rights of the wife are still less than in it. Civil right she has absolutely none. In ancient times the husband has the right of life and death over her. Once a war captive, she is now a purchased slave. Exogamy and permanent marriage have completely put an end to the independence of the Yakut woman. Those customs have excluded her from membership in the *sib*. Outside of the family, there remains no place for her, and at the head of the new form of the family stands her husband. If a Yakut woman is not married, her position after the death of her parents becomes still harder; she is delivered over to a permanent inferiority; to the reproaches and the exploitation of all her relatives, brother, uncles, nephews, and, worst of all, their wives and children. This is why the Yakut women are very anxious to be married, and sincerely mourn in case of the death of even ill-natured and cruel husbands. An orphan girl, or a young childless widow, is compelled to run about from one guardian to another, or to live with some one of them in the capacity of a permanent and unconditional labourer. Her possessions such a guardian considers as his own property, and if she should marry, it is rarely the case that

she can recover them at his hands. No one has any desire to take her part, or to enter into a quarrel with her guardian, who is sure to be a man of importance in the *sib*. The men zealously guard their own privilege of exclusive participation in the meetings of the *sib*. Women who cannot endure the cruel usage of their husbands rarely complain to the *sib* of the husband, but prefer to take refuge under the protection of their own; the latter generally sends them back. Nevertheless, the flight of a wife brings so much unpleasant experience upon the husband, and gives occasion for so much ridicule, that husbands avoid provoking their wives to this point. Cases in which wives ran away from their husbands were especially numerous just at the time when Christianity was preached amongst the Yakuts. Conversion to Christianity and marriage with Christians freed the women from prosecution by the authorities of the *sib*. Great numbers of women took advantage of this. After Christianity had been established, the device ceased to be available.

A wife can expect no protection in the *sib* of her husband, and in his immediate household all unite heartily against her, since she is an outsider from another *sib*. The maiden sisters of the husband enjoy an especially bad repute amongst Yakut women. Evidently there is here a traditional enmity, but often it is founded in the nature of things. The author gives a case known to him, in which a woman of exceptional merit and ability was persecuted by the maiden sisters of her husband, who spoke ill of her to him and stimulated him to harshness against her. He also knows cases of suicide by young wives under the persecution of the husband and his relatives. Neither law nor customary right offers any protection against these persecutions. If anything restrains them, it is the trouble and expense of buying another wife. In this way the protection of the *sib* of the woman, translated now into a large ransom, has done the women a good service. It has softened the family *mores*, and taught their masters to give them some protection. Their position has been little changed up to the present time. Of course there are exceptions. There are women who rule their husbands as European women do; there are disobedient daughters, and there are energetic widows, who keep large households in terror; but this can be the case amongst the Yakuts only when the circumstances are favourable to a far greater degree than amongst Russians. Everything is against the women; the conditions of labour, which require a family organisation, and the land tenure which recognises the men only as having a share; and traditions and education.

A boy almost from the cradle hears that he is the master, the worker, the future support and hope of the family. They feed and clothe him better than they do the girls; they compel his sisters to give way to him in a quarrel; and they inspire him with contempt for his sisters and in general for feminine occupations. Amongst their proverbs are: "A woman's mind is shorter than her hair"; "Women, though they have long hair, are narrow-minded." Amongst their sayings are: "We consider our daughters as outsiders; they will be obliged to go away to other people." "Whatever work a woman may do, there is no profit from

her." "If a woman passes between me and my fire, she can spoil for me both my handicraft and my luck." "We Yakuts in old times despised women. We thought them unclean." Various epithets for "womanish," in a contemptuous sense, are met with at every step. In the folk tales women are objects of ridicule, and in the traditions the heroes call each other "women" in vituperation.

Women, especially when they are pregnant, are forbidden by custom to eat some dishes and to touch some things. They are considered in some sense unclean. They spoil the gun of a hunter, and lessen the good fortune of a handcraftsman. All this has brought the women to recognise from childhood their own worthlessness and rightlessness, and has made them servile and cringing. Yakut women are in general far more obedient and humble than Russian women. You will hear any well-bred Yakut woman say with conviction: "The husband is our lord; he feeds us; he gets us what we need, and protects us." This is the current opinion. The author has more than once heard hard-working women express it, although they did not only their own work, but that of their husbands; and also clever women, who far surpassed in cultivation their stupid husbands. When such a husband beat such a wife, she was asked why she did not give him a good thrashing, and then he would let her alone. "It's impossible," she answered with a smile, "he is the husband. If I should beat him, people would cease to respect him, and that would be bad for both of us, and for our children."

[p. 578.] *Sex Mores.*—The Yakuts see nothing immoral in illicit love, provided only that nobody suffers material loss by it. It is true that parents will scold a daughter, if her conduct threatens to deprive them of their gain from the bride-price; but if once they have lost hope of marrying her off, or if the bride-price has been spent, then they manifest complete indifference to her conduct. The time which young wives spend with their parents after the wedding is the merriest and freest time they ever know. The young men hover about them like flies, but the parents pretend to take no notice, and even in most cases take advantage in their household work of the serviceability of these aspirants. They only strive that these connections may not be long continued, and may not become notorious; for this might bring upon them unpleasant consequences from the family of the husband, and might lessen the quantity of gifts which they might expect later. Maidens who no longer expect marriage are not restrained at all, and if they observe decorum, it is only from habit and out of respect to custom. The young women of the community in which the author lived, in autumn, with the knowledge of the old people, went out to live in a separate house, on the bank of a lake, where every evening young men of the neighbourhood went to join them. They spent the evening in singing, story-telling and witty conversation. The author having chanced upon them one evening, they entertained him with food and tea, and when he started to leave, the twenty-two year old sister of the man with whom he lived, who at home was ordinarily very modest and reserved, openly proposed herself to him for the night. At the time of weddings, and at the festivity of the *sib* (*esseah*) the oversight over the maidens is exceedingly weakened,

The current opinion does not approve of mothers who take their young daughters with them to those places. In games the young men are free with their hands and the girls do not especially defend themselves. The author was a witness of proceedings which fully confirmed the statement above made that sisters are never allowed to depart in marriage as virgins. [This shows that exogamy cannot be due to horror of incest.] The birth of an illegitimate child, and illegitimacy, are not regarded as a disgrace. If such children are vigorous and active they are treated in the family with the same affection as lawful children, or even with more.

[p. 581.] *Love in Marriage.*—The author devoted attention to the question, what place is occupied in marriage, and in the life of the people, by love? Evidently in marriage they consider it superfluous. They esteem more highly a peaceful status, founded on friendship, esteem, and recognition of the solidarity of interests, than any passionate attraction. Previous acquaintance between bride and groom is regarded as superfluous. Most marriages are brought about without the participation or consent of the young people. Only an extreme repugnance to each other on the part of the two, as a consequence of which a passionate and stubborn protest is manifested, may sometimes win attention. If such a protest is made by the man, it more frequently is respected, but they compel daughters, even grown women and widows, by force, and without discussion, to enter into marriage against their will. For this purpose they beat them, or threaten to drive them out destitute from the house. The author mentions a case in which a man compelled the widow of his brother to take as her husband a man whom she did not like, by the threat to take away her children and property from her. She was living at the time in open union with the brother of the husband who was forced upon her. It must not be understood that the feeling of love is unknown to the Yakuts, or that they do not know how to value it. In their popular songs, which the boys and girls sing under their voices when sitting at work, there is manifested a well-defined ideal of beauty. In these songs, just as in European love songs, black eyebrows, an erect figure, rounded hips, flashing eyes, silvery tones of the voice, etc., are praised. Sometimes they also speak in honour of mental and moral qualities, such as a pure heart, cleverness, accessibility, industry on the part of men, and on the part of women, tenderness, self-sacrifice, and modesty.

[p. 614.] *Notion of the other World.*—The Yakuts feel the joy of life, but trouble themselves little about the morrow, especially about the morrow of death. The notion of the purpose of existence, and of the futurity of all living things, of the end of the world, and of all that which happens to men after the end of life is very weakly developed amongst them; and even that little about these subjects which they borrowed with Christianity from the Russians has faded into the background of their minds. With the exception of some shadowy conceptions of the Biblical paradise and hell, they have scarcely any beliefs about the connection between this life and the other life, in the way of rewards and punishments. The author quotes a description of Hades and of the souls living there as follows:

“Beyond the eight grades of heaven, on the west side, where there is no day, but constant, gloomy night, where there is no summer, but only the winter wind whistles, with a reversed, wretched, and irregular course of the gloomy, nocturnal sun turned upside down, with a reversed circuit of the crooked moon, with maidens who never get husbands, with youths who never take wives, with stallions whom the mares never accept, with bulls whom the cows never accept, consisting of a house of stone and iron, so built that the top part of it is narrow, the bottom part flattened out, and the middle bulging.”

*Mortuary and Funerary Usages.*—The Yakuts have a custom of making presents to their acquaintances before death. They give away cattle, chattels, and more rarely, clothing and money. They think that washing the corpse is obligatory ; but they put it off till the last thing in order to avoid superfluous trouble and busying themselves unpleasantly with the corpse. The dying person is often dressed in his grave-clothes while still alive. These clothes, even amongst the poorest people, are kept in store for this purpose; so that they are new or scarcely worn at all. One thing about which the dying Yakut really cares is that some domestic animal may be slaughtered immediately after his death, in order that, riding on it, or with it, he may accomplish his journey into the lower world. With this purpose for men, they slaughter oxen and horses, and for women, cows, young ones if the wealth of the deceased admits of a choice, and of course they select by preference beasts of burden on which one can ride, and above all, fat ones. The spirits of the dead will have to drive before them cows and calves with a switch ; or to lead them by ropes tied around the horns, which is attended with some inconvenience. Poor people kill the most worthless of the animals which they have. In the north, they often kill reindeer, but whether they kill sledge-dogs, the author does not know: he thinks not. The labourers who make the coffins and dig the graves, the literary persons who read the Psalter over the deceased, and the neighbours who visit the house at this time, are fed with the meat of the slaughtered animals. In the north, where in general all their customs have been better preserved, and where now they are observed with greater accuracy, even the very poorest families try to provide for the funeral feast of a member some animal, even if it is only a sucking calf. Sometimes they sacrifice for this purpose the last miserable cow. A Russian soldier at a military station wanted a monument set up on the grave of his brother who had died at that place while on a journey. “If you want to hire us for that purpose,” said the Yakuts to him, “then you must kill an animal, a calf or a reindeer. No blood has been poured out on the grave of your brother, and we are afraid.” If a well-to-do householder dies, and his relatives offer only a miserable funeral feast, then in the other world, the demons will pursue and torment his spirit, saying to him : “Is that your cattle ? It is miserable. Is that your funeral feast ?”

When the soul, in spite of the feast before death, and the expected funeral feast, and the other consolations, does not want to depart, and the dying man is tormented in a prolonged agony, then they place by the bed a cup of water, in

order that the soul before its departure may have the possibility of bathing itself. The corpse, when dressed, is placed in the chief corner of the house, on the bench, where it lies three days. The rites of the Russian church are performed over it, reading the Psalter, burning candles, incense, etc. The grave should be dug down a fathom or more to the ground which never thaws, in order that the body and the clothing may remain intact as long as possible. If there is not upon the grave elevation a cross and monument, then the angel of the resurrection will not know that a human being is buried there. The angel does not like a bad odour, and would avoid the place. It would be a mistake also to make the grave too deep, for the voice of the angel cannot be heard more than three fathoms down. All metallic ornaments are carefully removed from the grave clothes. Strings of leather or fibre are used in place of buttons and clasps. They leave only the cross hung from the neck and the betrothal ring, and in the case of women, the ear-rings; but these must in no case be of silver, but of brass. Poor people even make them of wood.

When the coffin is ready, they put the body in it and cover it over with white cotton cloth. In the left hand they place a passport [they use this word], in order that the ghost may be received into paradise, where it will live as it did on earth. If it had no passport, those of the other world would say to it, "Friend, you have gone astray," and it would have to go on beyond the forty-four lands where the demons live. On the third day, in the morning, they either carry the coffin, or place it on an ox, never on a horse, in order to bring it to the grave. Nobody accompanies it but the bearers and the grave-digger, and these make haste to finish their task as quickly as possible and hurry away home. When returning they would not for anything look backwards, but when they come into the gateway of the enclosure, or the door of the house, they themselves go, and they lead the beasts by which the corpse was carried, across a bonfire, lighted by them, built of the chips and shavings left over from the coffin, and also of the straw on which the corpse had lain. The spades, sleigh, and in general all that which was used in any way whatever for the interment, they break up and leave on the grave elevation. If they bury a child, then they hang up there on a tree his cradle, and they leave there his playthings. Formerly they left on the grave food, furniture, tools, dishes, and other objects indispensable in life. Now that custom has died out. In the north, on ancient graves, the author often found rusted and broken kettles, knives, spear-points, arrow-points, stirrups, and rings from harnesses and saddles,—all broken, punctured, and spoiled, with the purpose, as the natives explain, that the dead might not be able with them to harm the living.

*Shamans* and *shamanesses* are buried in just the same manner as ordinary people, but without the ceremonies of the church, somewhere in a remote nook in a grove or in a forest opening, which latter place is especially beloved by spirits and *shamans*. On a tree near the grave, they hang up the drum and magical dress of the deceased. They bury those persons with great haste by night, or at evening, and always afterwards carefully avoid the places where they are buried.

*Superstitions about the Dead.*—In general, the remains of a deceased person, wherever buried, inspire a Yakut with great fear. Such remains cause great interferences with nature, arousing winds, blizzards, and bad weather. The remains of a *shaman* produce all these phenomena in a very extraordinary degree. If, after a burial, the wind blows, that is a good thing, because the wind blows away all traces left by the deceased; otherwise upon these traces it is possible that many more living souls might go away into the lower world. In ancient times the Yakuts disposed of their dead on the branches of trees, or on narrow wooden platforms raised upon two posts. Even now such structures may be found in places in the woods. This was a foreign custom borrowed by the Yakuts from the Tunguses and the Yukagirs. In some districts the people who are a little well-to-do, in the case of a death, at once abandon the house, if not forever, at least for a time. They say there (in the Kolymsk district) that in ancient times, when anyone died, the inhabitants fled from the house, leaving in it the corpse with all the goods which belonged to the person when he was alive.

[p. 621.] *The Old and the Helpless.*—A local tradition is met with that in ancient times, if an old person became extremely decrepit, or if anyone became ill beyond hope of recovery, such person generally begged his beloved children or relatives to bury him. Then the neighbours were called together, the best and fattest cattle were slaughtered, and they feasted for three days, during which time the one who was to die, dressed in his best travelling clothes, sat in the foremost place and received from all who were present marks of respect and the best pieces of food. On the third day the relative chosen by him led him into the wood and unexpectedly thrust him into a hole previously prepared. They then left him together with vessels, tools, and food, to die of hunger. Sometimes an old man and wife were buried together; sometimes an ox or horse was buried alive with them; and sometimes a saddled horse was tied up to a post set in the ground near by, and left there to die of hunger. This tradition is met with on the Aldan River.

A fine tree attracts the attention of the Yakut. A Yakut will charge his friends to bury him under such a tree. Gmelin (II, 447) says that formerly they burned their dead, or placed them in trees, or left them in the huts where they died, and which all others left. There was also a custom to burn, on a separate fire, a beloved slave of the deceased, in order that he might serve his master in the other world. This custom was brought to an end by the Russian conquest.

*Goblinism and Demonism.*—During the time that the corpse is unburied, now not more than three days, the spirit does not leave the earth; the demons drive it about in all the places where it was accustomed to be during life, which makes it hard for anyone who had travelled much while alive. During that time, the ghost makes its presence known to the living by different knocks and sounds. Sometimes it can be heard to weep and complain; sometimes it is possible to see how it is trying to carry on its former household tasks. It gives hay to the cattle, or washes dishes, or handles straps, or rummages in the boxes in the store-room.

Once in a house in which the author was, all with the exception of himself heard the rustling and knocking of the ghosts of two old people recently deceased, in the walls. When the head of the animal which had constituted the funeral feast was eaten, the old people went away and became quiet. Some ghosts never come to rest; such a ghost is called a *yor*. Any ghost may become a *yor* if, when he is asked in the other world what he left on earth, he answers, "House, cattle, husband or wife, children, father, mother, relatives," and, when asked if he wants to go back to them, answers "Yes." That is why a *yor* most frequently torments his own nearest relatives. He hinders them from living their own lives, and from taking any pleasure, by constantly reminding them of himself. The relationships which surrounded the deceased during life also have influence on the question whether he will turn into a *yor*, but the most frequent case is that some ceremony has not been accurately performed; that some piece of meat or fat has not been completely eaten up. In a certain case they said that on the day after a wedding, the deceased brother and sister of the bride began to torment her by the pranks of a *yor*, because the wedding party had forgotten to make a libation of vodka, and to cast a bit of the fat or butter or meat on the fire. It was necessary then to call a *shaman*, or the bride would suffer from the *yors* all her life.

An aged Yakut woman told the author that when she was a child, she once became very ill. Her father called in a *shaman*, who went through his performances for seven days, calling on all the demons; but they all answered, "We are not the ones,"—and her life was despaired of. Then by chance there came to the hut a person who saw predictive dreams; he lay down and dreamed. When he awoke, he told that he saw in his dream how the deceased grandfather of the child, on the mother's side, sat by the chimney, and having put his feet on the hearth, warmed them while he stirred up with his stick the ashes and talked to himself, saying, "They do not see me with their eyes; they do not hear me with their ears; from the beloved child I will never depart. I will sit here to get something; to eat something." As soon as they knew this, the *shaman* began his arts again, and finally compelled the old man to acknowledge his presence. He was stubborn for a long time, saying, "I will not go. I will not go. I will not eat the child. I love her very much. That is why I caress her, but she does not endure that." Finally the mother and father begged the old man to go away, and he went. The child recovered.

All who die in childhood, all who do not live out their appointed term, all who are murdered or die suddenly, suicides and drowned persons, all who are buried and go to eternity without the rites of the church, become *yors*. In ancient times everyone who died became a *yor*, but with the introduction of Christianity, their number has been greatly diminished. The souls of *shamans* and *shamanesses*, of witches and sorcerers, of evil and envious persons, and of those who are hot-tempered, or are out of the ordinary kind, by virtue of something or other, become *yors*. They serve the higher powers as labourers. Having entered into living

persons, they cripple their bodies, spoil their eyes and their entrails, break their bones, make them hysterical, throw them out of their senses ; but sometimes endow them with magical powers and so make *shamans* of them.

*Shamans and Shamanesses*.—A *shaman* whose name meant “The-man-who-fell-from-heaven,” told the author about his career as a *shaman*. He was sixty years old, of middle stature, a dried up, muscular old man, although it was evident that he had once been vigorous and active. Even when seen, he could still perform shamanistic rites, jump and dance the whole night through without becoming weary. He had travelled from the northern to the southern extremities of the Yakut territory. His countenance was dark and full of active expression. His features resembled the Tungus type. The pupil of his eye was surrounded by a double ring of a dull green colour. When he was practising his magic, his eyes took on a peculiar, unpleasant dull glare, and an expression of idioey, and their persistent stare, as the author observed, excited and disturbed those upon whom he fixed it. Another *shaman* who was observed had the same peculiarities of the eyes. In general, there is in the appearance of a *shaman* something peculiar, which enabled the author, after some practice, to distinguish them with great certainty in the midst of a number of persons who were present. They are distinguished by a certain energy and mobility of the muscles of the face, which generally amongst the Yakuts are immobile. There is also in their movements a noticeable spryness. Besides this, in the north, they all without exception wear their hair long enough to fall on their shoulders. Generally they braid it behind the head into a queue, or tie it into a tuft. In the south, near the city of Yakutsk, where the clergy and government persecute them, and where they are compelled to hide, long hair is rare. “The-man-who-fell-from-heaven” declared that he did not like long hair because the little *yors* frisk about in it and torment him. He could not get rid of them without cutting it off. Some *shamans* are as passionately devoted to their calling as drunkards to drink. This man had several times been condemned to punishment ; his professional dress and drum had been burned ; his hair had been cut off, and he had been compelled to make a number of obeisances and to fast. He told the author, “We do not carry on this calling without paying for it. Our masters (the spirits) keep a zealous watch over us, and woe betide us afterwards if we do not satisfy them ! But we cannot quit it ; we cannot cease to practice *shaman* rites. Yet we do no evil.”

The amount of payment given to a *shaman* differs. He is paid only in case his sorcery produces the desired result. Then he sometimes gets twenty-five rubles, or even more. Generally he is paid one ruble and his entertainment. Besides that he eats, and in some places takes home with him, a part of the meat of the animal sacrificed at the ceremony. The shamanistic gift is not hereditary, although there are some popular sayings which indicate a notion of some blood relationship between *shamans*. His guardian spirit is believed, at the death of a *shaman*, to seek a new residence in one of his blood relatives. This guardian spirit is essential to every *shaman*. Even the greater *shamans* must have a tutelary spirit

(*amagat*). This animal form is the one which the *shaman* assumes in the spirit-world. It may be compared with the Manito of the Red Indian, and is known in Yakut as *ye-keela* (= mother-animal). All *shamans* hide their *ye-keela* carefully. (See the Polish edition, p. 396.) Only once in the year, when the last snow melts and the whole ground becomes black, do these animal forms of the *shamans* show themselves on earth. Then the spirits of the *shamans* embodied in them rush hither and thither. Ordinary people do not perceive them, but only the eyes of the sorcerers. The strong and bold *ye-keela* fly about with noise and with zealous activity, but the weak ones creep about timidly. The *ye-keela* of the *shamanesses* are remarkable for excessive jealousy and quarrelsomeness, and if a real sorceress is found amongst them, she will give way to no one. Inexperienced or jealous *shamans* often get into fights. The consequence is disease or death for the one whose familiar spirit has been slain.

It does not depend on the will of the *shaman* whether he will obtain a guardian and protecting spirit (*amagat*) and *ye-keela*, that is to say, the qualities which belong to such. It either comes to pass accidentally, or is predestinated from above. "The-man-who-fell-from-heaven" told how he got a guardian *amagat* as follows: "Once when I was travelling in the north, I had gathered on the mountain a pile of wood. It was necessary for me to cook my dinner at once, so I set fire to the pile of wood. It happened, however, that a distinguished Tungus *shaman* had been buried beneath the place where the wood pile was. His spirit took possession of me." When this man performs his rites, the Tungus origin of his *amagat* is shown by the fact that he mutters Tungus words and makes Tungus gestures. Different spirits come to him when performing; for instance, a Russian devil, the daughter of a demon, with a demon youth, as well as the Tungus spirit. The first shows Russian characteristics. He asks for vodka, and a maiden. The second and third behave themselves in an extremely free and easy manner, and, without ceremony, they ask those who are present whether they have *pudenda*. It will not do at all to answer these questions affirmatively. He who does so will become impotent. The demon youth mutilates the females, and the girl demon the males.

The mightiest sorcerers are those whose guardian spirits are sent by Ulutoyon, the great deity himself. Of such there could be, they said, in the whole land of the Yakuts, only four at a time, corresponding to the four *Uluses* of the Yakuts which were first formed. In each of these *Uluses* there are special *sibs* which are distinguished for strength in sorcery, in the midst of which, from time to time, a great *shaman* appears.

[p. 631.] The further north we go, the greater ability do the *shamans* manifest. The *shamanesses* have greater might than the men. In general the feminine element has a very prominent rôle in sorcery amongst the Yakuts. In the Kolmyck district the *shamans*, for want of any special dress, put on women's dress. They wear their hair long and comb and braid it as women do. According to the popular belief, any *shaman* of more than ordinary power can bear children

like a woman. It is narrated of one of them that he gave birth several times ; amongst the rest, to a fox. Another gave birth to a raven, and the birth was so difficult that he nearly died. They give birth also to gulls, ducks and puppies. The whole proceeding, in sorcery, has a fantastic character. The songs are richly embellished with suggestions and parallels chiefly borrowed from the domain of sex functions. The dances constantly pass over into indecent gestures and movements.

*Smiths*.—*Smiths* stand in a close and peculiar relation to *shamans*. Popular sayings are ; “*Smiths* and *shamans* come out of one nest.” “*Smiths* and *shamans* stand on the same plane.” “The wife of a *shaman* is to be respected ; the wife of a *smith* is worthy of honour.” *Smiths* also are able to cure diseases, to give counsel and to make predictions ; yet their dexterities lack any magical character ; they are only clever men who know a great deal, and whose fingers are expert. *Smiths*, especially in the north, generally transmit the craft from father to son. In the ninth generation a *smith* obtains almost supernatural qualities, and the more of a man’s ancestors were *smiths*, the more real these qualities are. In the legends, mention is often made of *smiths*; they are called an honoured band. Spirits are, above all, afraid of the clink of iron and of the roar of the bellows in activity. In the Kolymsk *Ulus*, a *shaman* was not willing to perform until the author should take out from the hut his box of instruments, and after the *shaman* had failed, he explained to the bystanders that the spirits are afraid of the *smith* (the author), and therefore will not come at the call. Only in the ninth generation can a *smith* without danger for himself forge the iron ornaments of the *shaman*’s professional dress and drum, or the brazen breastplate with the figure of a man, which represents the tutelary spirit of the *shaman* and is put on when he is about to perform. The saying is : “If a *smith* who has forged the decorations of a *shaman* has not enough of the qualities of his own *smith*-ancestors, if the sound of their hammers and the flash of their fires do not surround him on every side, then birds with crooked claws and beaks will tear his heart.” Amongst such venerated hereditary *smiths*, the tools have acquired souls, so that they can give out sounds of themselves. On a fine professional dress of a *shaman*, there will be from thirty to forty pounds of iron. The dress costs from three to fifteen rubles. [p. 635.] According to the common belief, the metallic attachments of the *shaman*’s dress have the peculiarity that they do not rust ; they have a soul.

*Liechcraft*.—The *shamans* cure all diseases, but especially such as are mysterious, being nervous affections, such as hysterics, mental derangement, convulsions, and St. Vitus’ dance ; also impotence, sterility, puerperal fever, etc. ; then diseases of the internal organs, especially such as cause the patient to groan, scream, and toss about ; then also wounds, broken and decayed bones, headache, inflammation of the eyes, rheumatic fever ; besides these also all epidemic diseases and consumption ; but this last they treat only with a view to alleviation, considering it incurable. They refuse to treat diarrhoea, scarlet fever, measles, small-pox, syphilis, scrofula, and leprosy, which they call “the great disease.”

They are especially afraid of small-pox, and take care not to perform their rites in a house where a case of it has recently occurred. They call small-pox and measles "old women," and say that they are two Russian sisters dressed in Russian fashion, who go to visit in person those houses where they have marked their victims. All diseases come from evil spirits who have taken possession of men. Methods of cure are always of the same kind, and consist in propitiating or driving away the uninvited guest. The simplest method of cure is by fire. A boy whose wounded finger became inflamed, came to the conclusion, which the bystanders shared, that a *yor* had established itself in the finger. Desiring to drive it out, he took a burning coal and began to apply it around the place while blowing upon it. When the burned flesh began to blister, and then burst with a little crackle, then the curious group which had crowded around him flew back with a cry of terror, and the wounded boy, with a smile of self-satisfaction, said:—"You saw how he jumped out." A man who had the rheumatism had his body marked all over with deep burnings. As soon as he had any pain, he applied fire to the seat of it.

[p. 637.] *Exorcism.*—In order to drive out demons which torment people in sleep, it is a good plan to put any iron cutting instruments under the bed; or to put near by any iron rod, axe, or other tool. The most trustworthy thing of all, although not always applicable, is fire, placed between the victim and his tormentor. An expiring fire-brand cast down by the threshold of the house door is often used by the Yakuts to prevent evil spirits from getting into the house. Often when they first bring into the stable beasts which they have newly obtained, they lead them through fire. Not only sounds and objects, but people possess the power, some of them temporarily, others permanently, without exertion, to infuse terror into the invisible powers. For instance, a man who has killed a bear can cure some diseases.

Observation justifies the division of *shamans* into great, middling, and petty. Some of them dispose of light and darkness in such a masterly manner, also of silence and incantation; the modulation of the voice is so flexible: the gestures so peculiar and expressive; the blows of the drum and the tone of them correspond so well to the moment: and all is intertwined with such an original series of unexpected words, witty observations, artistic and often elegant metaphors, that involuntarily you give yourself up to the charm of watching, this wild and free evocation of a wild and free spirit.

In the northern part of the Yakut territory, when the *shaman* is about to perform under the auspices of some householder, the latter having selected the best straps he possesses, ties a kind of double noose, which is then put around the shoulders of the *shaman* in order to hold him by the free end of this strap while he is dancing, so that the spirits may not steal him away.

[p. 645.] The dance of the *shaman* figures the journey to heaven in company with the spirits and the sacrificed cattle. In ancient times there were *shamans* who actually went to heaven and saw those who were there. There were some

even who were so clever that instead of real cattle they took to heaven a fictitious "shadowy" mare; but such *shamans* are not received in heaven. A cow offered in sacrifice is tied to the first of a series of posts; a rope is tied to this post, and then to each of the others in the series, rising higher and higher from the ground as it goes on. A rag is tied to this line between each pair of posts.

[p. 654.] *Deities*.—Ai-toyon is the personification of existence in general. That part of existence which is manifested in each living thing is personified in a special deity called Ulu-toyon. The latter manifests himself sometimes as a powerful, and angry chastiser. Then he gives commands to his subordinates, or himself, incarnated in an animal or something else appears on the earth. All calamities, torments, and unhappiness, all diseases and sufferings, are gods of his household, and related, subordinates of his mighty hand. However he by no means wishes the annihilation of the living; on the contrary, by his mighty power he restrains all these calamities, which if he did not do so, would submerge the earth and in a moment wash away everything living from its face.

*Superstitions about Fire*.—The spirit of fire is a grey-haired, garrulous, restless eternally fussy old man. What he is whispering and shuffling about so perpetually few understand. The *shaman* understands it, and also the little child whose ear has not yet learned to distinguish human speech. The fire understands well what they are saying and doing round about it; therefore it is dangerous to hurt the feelings of the fire, to scold it, to spit upon it, to urinate on it. It will not do to cast into the fire rubbish which adheres to the shoes, for that would cause headache. It is sinful to poke the fire with an iron instrument, and the wooden poker with which they do stir it up must be burned every week, or there will be bad luck in the house. A good house-mistress always takes care that the fire may be satisfied with her, and she casts into it a bit of everything which is prepared by its aid. No one ever knows what kind of a fire is burning on the hearth in his house; therefore it is well to conciliate it from time to time, by little gifts. The fire loves, above all, fat, butter, and cream. They sprinkle these often upon it. They told the author, in the northern region, about a people who were said to live on the islands of the Arctic Ocean and who had no knowledge of fire.

[p. 665.] Fire is often presented as a protector and as a symbol of the family and the *sib*. A youth who comes to find a wife dare not pass beyond the strip of light, which falls from the household fire, to go over on the women's side of the house. This would be improper. The same is true for any other person who does not belong to the family. A betrothed man, until he has paid the whole of the bride-price, has no right even to light his pipe at the fire of his affianced; but a wife brought home to the house of her husband, and taking her place in his family ought first of all to go around behind the fire and cast into it a little butter or fat, to put three splinters into it, and to blow them to a blaze. In general women ought not, as far as they can avoid it, to pass over the strip of light in front of the fire-place; their domain is behind it. In the southern districts the cultus of the

fire is dying away year by year; but in the north it is in full force. Besides the domestic fires, there are also wild and wandering fires. If these are lighted by the spirit of the place, when enjoying itself, then they are good fires; but if they are the work of the devil, then it is a bad sign to meet with them. There are also heavenly fires, such as the lightning, which was formerly considered a symbol of *Ai-toyon*, but this notion is undergoing change and cannot now be defined.

*Shadows*.—The shadow thrown by objects is considered a peculiar, real, and inseparable part of the object. It has some connection with the soul of the object, and also some connection with fire as a spirit. (See note H, p. 108.) In the incantations, phrases are often met with of this kind: "The shadow of the fire." "The fire shadow." "The shadow of the spirit," etc. The *shaman* in one of his rites says: "Cast all thy diseases into the shadow of the fire." It is possible to lose one's shadow. Then misfortune threatens the man. They say: "A man has three shadows; it is possible to lose the first two, although then a man becomes inactive, diseased, and flaccid. When he loses all three, he perishes."

Every object may have at its disposition a soul (*ichchi*), as well as a shadow. All objects which bear traces of human handiwork have souls (*ichchi*). Cliffs, mountains, rivers, and woods have souls (*ichchi*). The wind is also a spirit. It sleeps in the mountains; it is not hard to call it from thence by a whistle. (See note H, p. 108.)

Some of them think that the milky way is a seam in the heavens. The heavenly bodies in general influence the fate of men and the changes of the weather. They foretell the future.

When a man dies it is not permitted to his household to execute any work until after the next new moon. The moon itself has a soul and human attributes. It stole an orphan girl who was tormented by her step-mother, who sent her for water in winter bare-footed. This girl is now in the moon, with a shoulder yoke and pails on her shoulders, and around her grow sand-willows which were stolen at the same time with her. As she grows the moon grows.

*Divination*.—They have a system of divination as follows. They draw two concentric rings on the table, and mark the north, north-east, east, south-east, south, south-west, and west points on the exterior circle. The northern point is called the chief road; the north-eastern point, being the point of the summer solstice, is the road for getting horned cattle; the east is the road of good luck; the south-east, the winter solstice, is the road for obtaining horses; the south is the chief road; the south-west is the road into the woods, and means death; the west is the dark road of the devils. The diviner sits down at the table, rests his elbows on it, and his forehead on his hands. A string with a weight on the end hangs from his little finger. Having recited an incantation, he waits until the pendulum comes to rest. After a time it begins to quiver and wave, and falls into a line of movement corresponding to one of those in the figure. They are very eager to discern the future, and have a number of methods for it. They divine by the falling of a spoon. A *shaman* does it by the falling of his drumstick. The

girls do it by the falling of a coal. They split a stick and insert in the split a splinter lengthwise, so that it holds the split open. They set fire to the splinter in the middle. When the coal flies off, on account of the pressure of the split stick, then the person finds out whether his wish is to be fulfilled or not.

NOTES BY THE AUTHOR, M. SIEROSHEVSKI, embodied in the Polish edition : *Twelve years in the land of the Yakuts*, Warsaw, 1900, F. Karpinski; (*Dwanas'cie lat w kraju Yakutan*, Warszawa, 1900, nakladem F. Karpinskiego.)

A. Selon toute probabilité, les Yacouts menaient autrefois une vie nomade dans la Mongolie et faisaient part des tribus qui dans les premiers temps de notre ère formaient les grands états turaniens nomades, connus aux historiens chinois sous des noms différents : Hun-nu, Goa-giu, Tu-qui, Uj-gur, etc. (Voir l'édition polonaise, page 90.)

B. Dans les *Ulus* du centre, où l'agriculture ne s'est pas encore développée, les conditions sont aussi défavorables à la pêche et les animaux pouvant faire l'objet de chasses fructueuses sont presque totalement exterminés.

C. C'étaient des coutumes très anciennes provenant sans doute du temps où le *sib* commençait à s'organiser. Pendant les migrations des Yacouts du midi au nord la perte du petit bétail (moutons, chèvres) ainsi que l'amoindrissement des troupeaux de bêtes à cornes furent la cause d'une rétrogradation économique, du retour aux troupeaux de chevaux. Les Yacouts jusqu'à l'arrivée des Russes, ne savaient pas sécher le foin et le tasser en meules. Les chevaux du pays n'en ont pas besoin même en hiver. Ils savent trouver leur nourriture en écartant la neige avec leurs sabots. Mais, par contre, ces troupeaux exigent un changement continual de place et donnent une nourriture de qualité inférieure, facilement gâtée et impropre à conserver.

D. Les groupes qui se développaient le mieux étaient ceux, qui pouvaient manger à la fois toute une bête tuée. Leur facilité de mouvement était plus grande, car ils n'avaient pas besoin de traîner avec eux des fardeaux et la nourriture n'était pas exposée à se gâter.

E. Le code moral des Yacouts n'avait pas prévu le meurtre au dedans du *sib*. On doit supposer, que le meurtrier était obligé de quitter le *sib*, la vengeance cessait en cas de paix conclue entre les *sib* avec paiement du *vergeld*.

F. Chez les Yacouts nous trouvons un groupe familial encore bien mal connu par les savants : on le nomme *ye-usa* (*ye* = mère, *ussa* = *sib*). Maintenant c'est la dénomination du groupe déduit de la ligne mâle et qui a quelque ressemblance avec la *familia* romaine. Autrefois il semble, que *ye-usa* était le nom général donné à tous les descendants d'une même femme. (Voir l'édition polonaise, pag. 293.)

G. Les Yacouts emploient l'os du périné comme symbole de la concorde, de la vénération et de la paix pendant la célébration des mariages, pendant les meetings du *sib* et les pratiques des *shamans*. "Partageons entre nous les os des animaux comme la *vodka* (= l'eau-de-vie)" disent-ils. Des os semblables ne doivent pas être cassés. Celui qui l'a reçu, le casse lui-même et en mange la graisse. (Voir l'édition polonaise, pag. 242.)

H. Mais l'âme élémentaire de l'objet en général (*ichchi*), qui, à ce qu'il semble, exprime tout simplement son action d'exister, diffère de l'âme des objets vivants (*sur*). La vie commence où commence la respiration (*ty*). Les objets vivants auraient donc comme une double âme ; (1) l'existence (*ichchi*) et "le mouvement" (*sur*) ; les animaux morts ou souvent malades perdent leur *sur* et conservent seulement leur *ichchi* qui disparaît aussi en cas de mort. L'homme et parmi les animaux le cheval seul ont une âme triple : le *ichchi*, le *sur* et le "*kut*." La *kut* humaine est petite, pas plus grande qu'un petit morceau de charbon. Quelquefois le chamane évoque de par-dessous la terre dans la partie gauche (féminine) de la maison la *kut* des malades. Elle s'agit posée sur la main et est très lourde. La *kut* abandonne quelquefois l'homme pendant son sommeil et erre au loin. Si par hasard il lui arrive malheur pendant son voyage, son propriétaire tombe malade. La *kut* est comme l'image indecise, comme l'ombre. Comme l'ombre a 3 parties : une grande et pâle, une petite et plus foncée et le centre tout sombre, ainsi l'homme possède 3 âmes. Quand il en perd une il souffre de malaise, deux il est malade, trois il meurt. (Voir l'édition polonaise, pag. 382.)

## ADDITIONAL NOTE BY W. G. SUMNER.

The passage on terms of relationship and address having been entirely re-written in the Polish edition, a literal translation is here appended.

The most primitive and strictly defined term of relationship is *ie*, "mother," the exact sense of which is, "ease," "matrix," "place of birth." The term for "father," *agu*, is not so distinct. It means "an elderly man," *i.e.*, an adult. When a Yakut wants to know whether a certain person, without regard to sex, was born before or after himself, he asks whether that person is *agu* or *balys* (French, *ainé* or *puîné*). The term for "child," *ogo*, is entirely indefinite. Its sense is "young one." It is employed for the young of beasts, birds, and even trees (sprigs, sprouts, offshoots). *Ogom*, "my child," which is formed by adding the possessive pronoun *m*, does not imply at all that the person addressed was procreated by the speaker. It is addressed equally to grandson, son, or even younger brother. In the current vernacular, older persons use *ogom* in addressing younger persons without regard to blood relationship. "The ancient Yakuts, even when very angry, did not address young persons otherwise than 'my child.'" *Uol*, "lad," and *kys*, "maid," express primarily "male" and "female," but they are used nowadays, with the possessive *m*, for "son" and "daughter." The Yakuts have no special terms for son and daughter. Nor have they any term to express "husband," since *erim* (*er* man, and *im* the possessive) means properly "my man." For "wife" they always say, in the current speech, "my woman," or "my old woman," although they have a special term, *ojoch*, for "wife." From all this we may infer that when, amongst the ancient Yakuts, a number of related persons were living together, the relations of "mother" and "wife" were the first ones which called for expression, "mother" meaning a woman who had children. This inference would support the belief that the matriarchate once existed among the Yakuts. The children belonged to the whole horde. Any one of the adult men might be the father of a certain child since the sex relations were undefined and perhaps unregulated. It is a curious circumstance that the heroes in the ancient folk tales often set out to find their *fathers*. We see, further, that the terms of relationship amongst the Yakuts express, first of all, the distinction between *younger* and *older* than the speaker. There is one word for older brother and another for younger brother; one word for older sister and another for younger sister, but there is no general term for brother or sister, since all were brothers and sisters within the compass of a *sib*. Hence nowadays *ubaj* means not only "older brother" but also "older male cousin," "older nephew,"—in short "older member of the *sib*" than the speaker. *Ini* expresses not only "younger brother," but also "younger male cousin," "younger nephew," and in general "younger member of the *sib*." The case was the same as to female relations. In current speech, especially in personal address, the Yakuts use no other terms than these. Yet the proper terms exist, for the Yakuts have a nomenclature of relationship

which is even very rich and complicated. For some degrees they have two names, one used by males, the other by females—a feature of what Morgan calls the Turanian system. Thus: the younger brother whom males call *ini*, females call *surus* or *surdzja*; the wife of a younger brother is called by his brothers *kinit*, but by their wives *badzja*; similarly younger brothers and their wives have different names for the wife of the former's elder brother. This shows that the jural relations between these classes of persons were once different from what they are now, since we find that terms of relationship are indications of jural relations. The last mentioned terms of relationship have now lost their special signification. It would be too bold to build inferences on these terms only, since there is no tradition of any conjugal relation between brothers and sisters, and since special terms for father and husband are not lacking. It is a noteworthy detail that the older sisters and female cousins of one's father bear the same name, *sangas*, as the wives of one's older brothers; and that the older brothers of one's father bear the same name as the father of one's mother and his older brothers, *obaga*. Consequently the (older) sisters of one's father together with the wives of one's (older) brothers form one group, but one's paternal uncles (older than one's father), and one's mother's paternal uncles form another. The division into such groups is characteristic of the narrower man family, and the confusion of sisters and wives, maternal great uncles and paternal uncles in one concept is a proof of the relation of affinity between those groups. Therefore before the Yakuts went over to the man family based on pair marriage or polygamy, they practised, for a time, group marriage of sisters and brothers allotted according to age strata.

[In an Appendix to the Polish version the author gives a list of Yakut terms of relationship with definitions.]

## CEPHALOMETRIC INSTRUMENTS AND CEPHALOGRAMS.

By J. GRAY B.Sc.

[PRESENTED MARCH 12TH, 1901. WITH PLATES VI, VII, VIII.]

IN most countries on the continent of Europe, the collection of statistics of the physical characteristics of the population is greatly facilitated by the conscription ; and this, to a great extent, accounts for the fact that our neighbours are so far ahead of us in the ethnographical survey of the people. In this country we have to make use of less efficient means ; since we cannot bring the people to us, we must go to the people.

I have found it a very good plan to attend some assembly composed of natives of the district, such as a meeting for sports, or a fair. In order to get a satisfactory sample of the people of a district, it is necessary to measure at least from 100 to 200. The time available for doing this at such meetings is usually not more than three or four hours, and measurements have therefore to be very rapidly performed. The head measurements should preferably all be performed by one person, and the only measurements possible, if one is to measure large numbers, are measurements of the length and breadth of the head. The callipers used must be such as to require the minimum time for adjustment.

## CALLIPERS.

A callipers (Plate VI) which I have designed for this purpose is constructed on the sliding principle. Callipers on this principle have the advantage over the compass callipers, that the readings from the scale are more accurate, because the scale is larger, and also lies parallel to the line to be measured. In the compass callipers, the scale lies nearer the pivot of the callipers than the measuring points, and divisions of the scale must necessarily be smaller than the standard size. Another objection to this kind of callipers is that the scale is an arc of a circle, while the line to be measured is a chord, and equal divisions on an arc cannot possibly be used to measure a chord.

There is, however, a great objection to the sliding callipers as usually constructed. It will not, like the compass callipers, open automatically when pressed on the head, and this property is most essential for the rapid measurement necessary in field anthropology.

My object was to design a sliding callipers that would open automatically, and thus combine the advantages of both types. A little mathematical calculation will show that this can be done if the slide to which the movable leg of the callipers is attached is made greater than a certain minimum length.<sup>1</sup> This minimum possible length is still further reduced when friction rollers are used, as in the instrument shown (Plate VI).

Instead of using a slide fitting everywhere closely to the beam of the callipers, only two pins with friction rollers are used. Since the strain coming on the leg of the callipers always tends to produce rotation in one direction, two pins at the extreme ends of the slide are all that is necessary to take the thrust. This reduces the cost of construction and prevents any jamming due to bad fitting.

The friction of the bearings of the slide having been reduced to a minimum, it is necessary to introduce an artificial resistance to the movement of the slide which can be regulated in amount. A callipers which is suited for measuring a skull or other rigid body is not necessarily the best suited for measuring the living head, which, owing to the presence of the skin, is elastic; resembling, say, an india-rubber ball. To get uniform measurements of the diameter of an india-rubber ball with the same or different instruments, it is necessary that the points of the callipers should always press on the ball with some pressure. This I have endeavoured to secure by fitting on the slide a brake whose friction can be adjusted by a screw.

To standardise the callipers it is placed on a standard bar; the index line on the slide is then set on the scale to the length of the standard bar, by slackening the screws by which it is clamped to the slide. Then the pressure on the brake is adjusted till the force required to separate the points of the callipers is equal to the required amount,<sup>2</sup> a spring balance being used to measure the force.

Friction rollers are mounted at the points of the callipers to make the operation of measuring more pleasant for the person operated upon.

To measure the length of the head, the fixed point of the callipers is placed on the glabella, and the other end of the beam is pressed down. The movable limb of the callipers will then be opened automatically by the pressure of the back of the head till the maximum length is reached, when the callipers is removed from the head and the reading taken.

I have had a callipers made in which the limbs are pressed together by a spring, but this is not so satisfactory as the brake, because the reading must be taken when the callipers is on the head, and the slightest movement causes a variation of the reading.

<sup>1</sup> If  $x$  is the distance between the contact points of the slide along the centre line,  $a$  is the perpendicular distance from the centre line of the slide to the point of the leg, and  $f$  is the coefficient of friction of the contact points;  $x$  must be greater than  $2fa$  to ensure automatic opening.

<sup>2</sup> I have found that a convenient pressure is 14 oz. or 400 grammes.

## CEPHALOGRAPHS.

It has been proposed by several anthropologists to take diagrams of the whole contour of the head instead of merely measuring the length and breadth. Sergi has strongly advocated this method; he points out that the maximum breadth which is measured by the callipers may be at very different distances from the terminals of the maximum length in two heads of different contour, so that the same measurements by the callipers might be obtained on two heads of very different type.

Many instruments have been designed with the view of obtaining these diagrams. They do not appear, however, to be in general use. I have here two instruments which I have designed for this purpose. There are several details in which I can see they require improvement, but I have found that they work fairly well.

The first instrument (Plate VII) is constructed on the principle of the pitch chain. The pins or pivots of a pitch chain such as the driving chain of a bicycle always remain parallel to each other, however the shape of the chain may vary. These pivots are prolonged on one side of the chain in the instrument, so that when placed on a head they lie in contact with it; at the other ends they are pointed. The pins are pressed in contact with the head by spiral springs wound on the pins between the links of the chain. The diagram is obtained by pressing a sheet of paper on the pointed upper ends of the pins. The objections to this instrument are that it is inconvenient to handle, and the operation of taking a diagram is somewhat unpleasant for the person being operated upon.

To get over some of these objections, I have devised another instrument (Plate VIII), in which contact plates are pressed against the head by radial pistons actuated by compressed air. Fig. 1 is a sectional elevation and Fig. 2 is a half plan.

The framework of the apparatus is a ring, *A*, of aluminium alloy (such as Bowenite) which can be cast. In this ring are bored 48 radial holes, *B*, all of which on each half of the ring communicate with a channel, *C*, in the periphery of the ring. This channel is closed so as to form a tube, by shrinking on a ring, *D*, of the aluminium alloy on the turned periphery of the main ring. If the aluminium alloy is not strong enough to stand the shrinkage, brass may be used. In each of the radial holes is fitted a piston, *E*, with double cupped leather packing, which must work with very little friction, and yet be quite air-tight. I have made packing out of old kid gloves which is perfectly satisfactory. The leather is soaked in water for a day and then pressed into a cup mould.

The piston rods, *F*, are thin plates of brass lying in the vertical diameter of the cylinder, and kept vertical by a notched ring, *G*, covering half the mouth of the cylinders. The section of this ring is L shaped, and it is recessed and fastened by screws on to the main ring. Rivetted to the ends of the piston rods are vertical plates, some shaped like the legs of callipers, *H*, and some like combs, *I*,

which press against the head when the pistons are forced forward simultaneously by air pressure.<sup>1</sup> At the upper end of each plate is a sharp point, *J*, lying in the same vertical line as the point of contact with the head. This is to enable a sheet of paper to be pressed on the points, to receive a projection of the outline of the head. The sheet of paper is placed on a cork board, *K*, which is hinged at one end to the main ring. The hinge is fitted with a spring, *L*, which causes the board with the paper to turn down on the points when a spring latch, *M*, has been released.

A self-centring device is fitted to bring the centre of the main ring always over the centre of the head. For centring sideways two bell crank levers, *N*, are used geared together by toothed segments, *O*, and pressed against the sides of the head by springs (omitted in the drawing). For centring lengthways two inclined planes, *P*, fixed to a ring, *Q*, running round the periphery of the main ring, are used. These inclined planes act on studs, *R*, on the two extreme pistons which pass through slots underneath the cylinder. These two end cylinders are cut off from the air pressure applied to the other cylinders.

The two end pistons are pulled outwards by spiral springs, *S*, and are pushed inwards by the inclined planes. The ring of the inclined planes will have a few plain studs, *T*, for turning it, these being forced up to the fixed studs, *U*. After each operation the inclined planes are retracted by two springs, *V*.

#### CEPHALOGRAMS.

Instruments such as have been described for obtaining the contour of the head, have been called cephalographs; the diagrams may be called cephalograms by those who have no objection to an addition to our already extensive scientific terminology.

I have shown in the illustration (fig. 1) a few of the diagrams I have obtained with these instruments, all being from living heads. The persons have been taken at random, and I have no means of ascertaining whether they are typical specimens of their people or district.

The results, however, show a considerable resemblance between persons of the same people and *habitat*. The three Parsees are about exactly alike and are very different from the Brahmin. Persons from the same districts of England and Scotland appear to resemble each other more than they do persons from different districts.

I think these cephalograms promise to furnish us with a powerful means of analysing people into their racial elements. The callipers, however, is likely to remain the principal instrument for the preliminary work of an ethnographical survey.

<sup>1</sup> The calliper legs are used on the forehead and at the back of the head, and the combs are used at the sides of the head, the object being to get a diagram whose length and breadth shall be equal to those measured by the ordinary callipers.

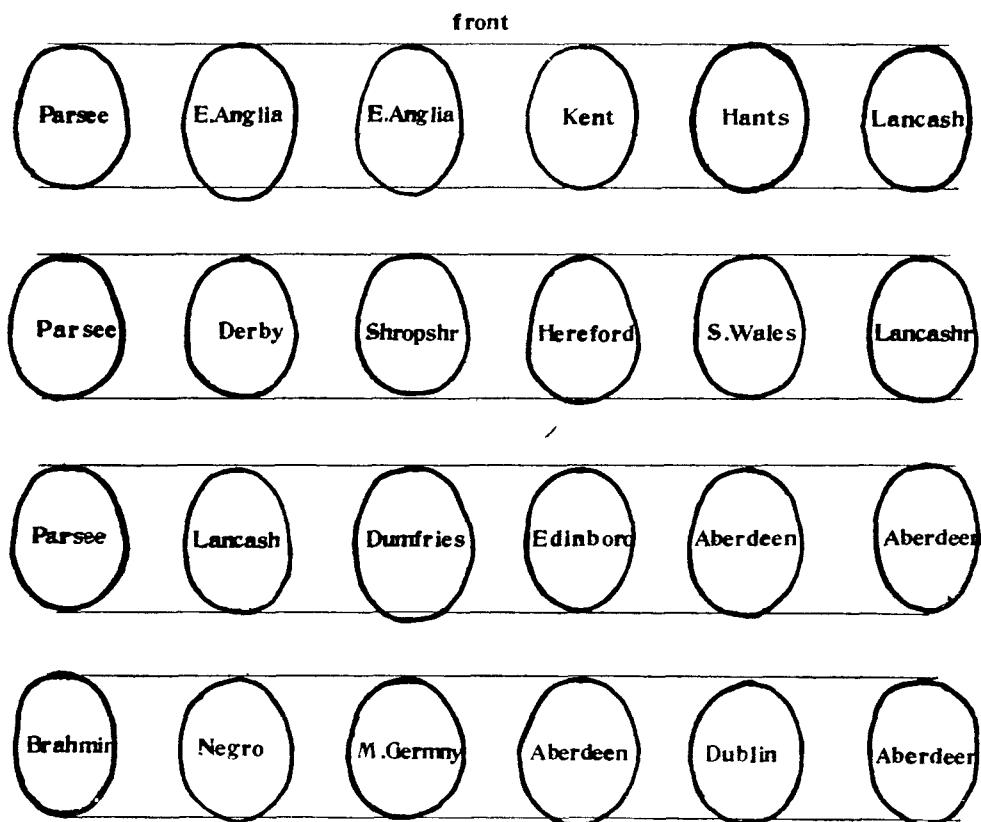
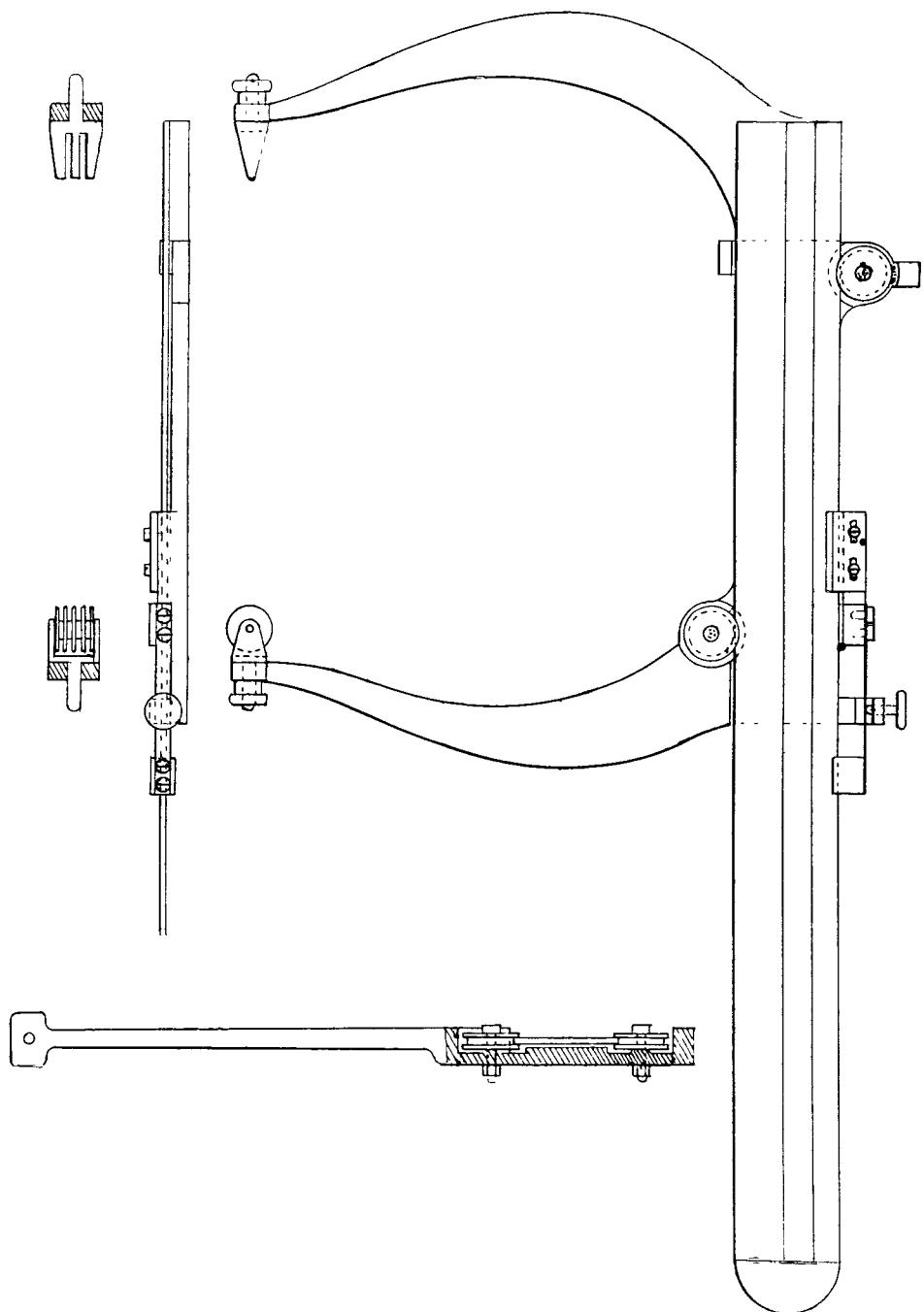
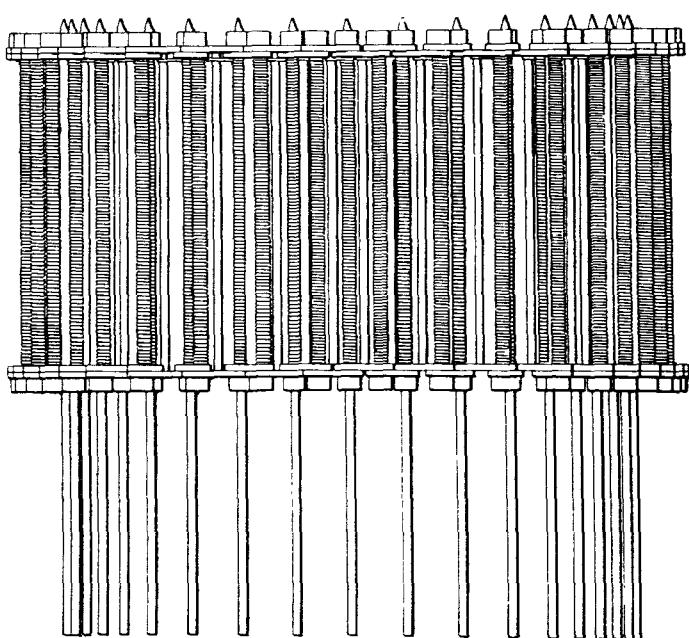
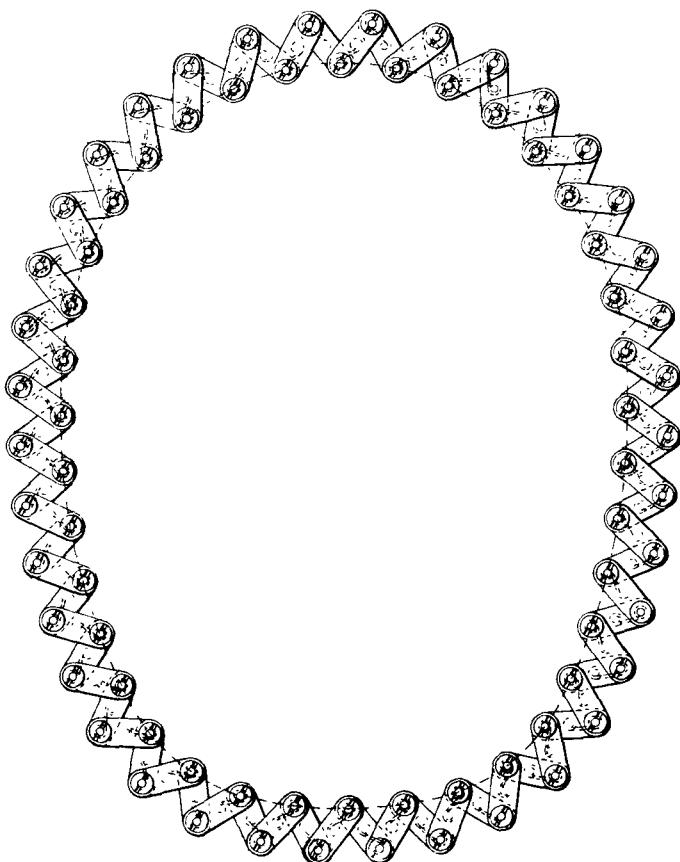


FIG. 1.

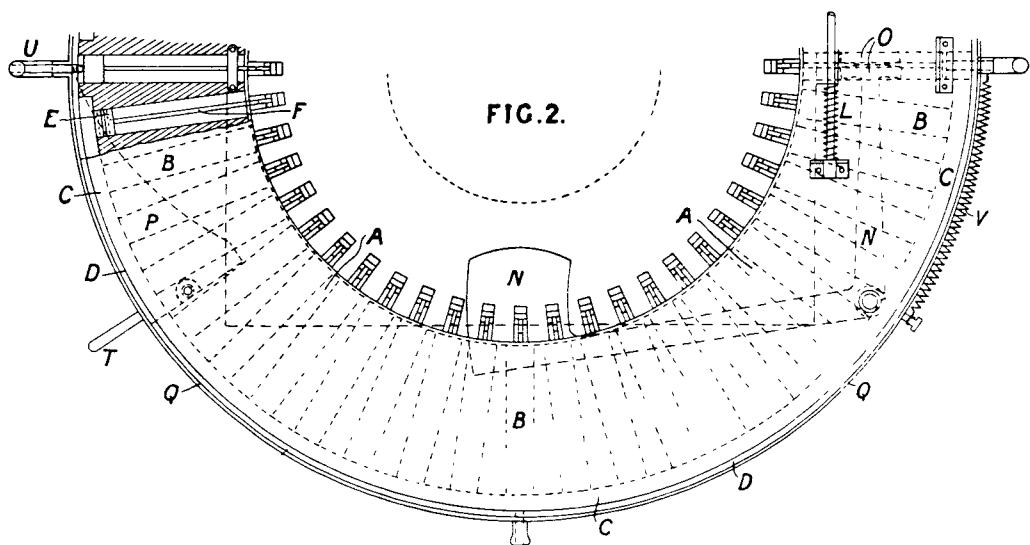
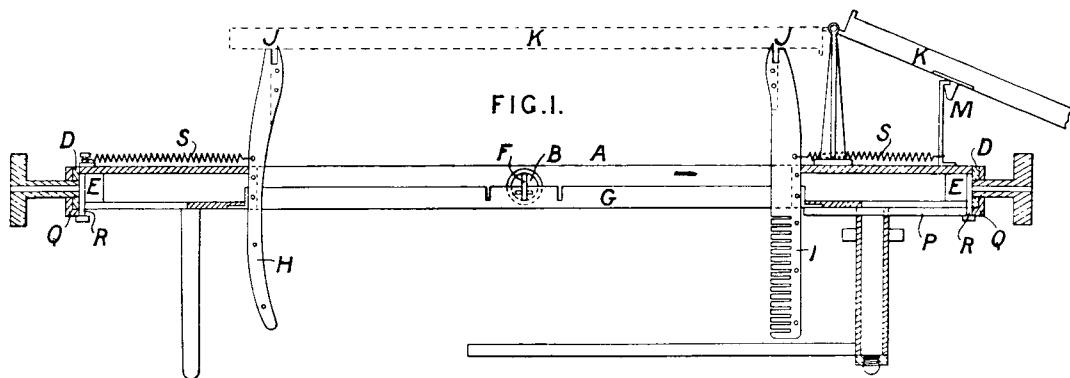














## NOTES ON THE MANNERS AND CUSTOMS OF THE BAGANDA.

BY THE REV. JOHN ROSCOE.

[COMMUNICATED BY J. G. FRAZER, 23RD APRIL, 1901.]

THE Reverend John Roscoe is an energetic member of the Church Missionary Society who for many years has laboured in Uganda. Despite ill-health and overwork he has made time to write out the following answers to the list of questions issued by Dr. J. G. Frazer (cf. *Journal Anthropological Institute*, xviii, 431).

We trust that we are not committing any breach of faith in printing the following interesting extracts from his letters to Dr. Frazer.

On the 10th December, 1899, Mr. Roscoe wrote:—"Had the work been done twelve years earlier it would have been much easier; we should have been able to get old people who would have given reasons for some of the customs; now I may question twenty people without gaining the point I require."

"Just before leaving Toro, I heard there are some men who say they have the labour pains for their wives. I was asking about the midwifery customs, and this was told me. The men are said to have all the pains, whilst the women go on with their regular duties, perfectly happy until the time of delivery. The relatives too go to the men and ask for the child."

"All I have just written [January 8th, 1900] on the matter of the spirits is quite new to me. I was told they had no such customs, and it was quite accidentally I found a little bit of information which has thrown a flood of light on some of them. All burial customs are closely connected with their ideas of the spirits, and if a corpse is not decently interred the spirit will haunt the relatives and bring sickness or calamity upon the house. Even the people I think I can trust often mislead me through carelessness, or allow some important thing to pass over and thus give wrong impressions. It is strange how the women were ignored in all the old customs; they did not take part in any of the ceremonies, and only in the case of an aunt does the spirit seem to be feared."

"For a month past [April 27th, 1900] I have been unable to get any assistance with the verifying of my notes, owing to all the chiefs being so busy framing new laws. The British Government has just introduced quite a new system of governing the country and abolished the Baganda system and laws.

This has taken up all of the time of my helpers and also their thoughts for a time. It was well you put me up to making notes of the old customs before all this came in and thus gave me a little time to get the main facts down. Now all of what was so very interesting is being swept away at one stroke by the Government, in the name of civilisation. It is creating a good deal of ill-feeling amongst the people, especially the peasants, who do not understand what to expect next. If only our Government had been able to go just a little more quietly, they would have gained their end without creating all the ill-feeling there now is."

"Some of the questions I do not answer as they do not apply to the Baganda, and some I can only partially answer because the men I ask either do not know or are not agreed. It is most remarkable how soon they forget their old customs, and how little they know of the reasons for the things they do."

### 1. *Tribes and Clans.*

<i>Kibe</i> , or fox.	<i>Enkeje</i> , small fish ; sprats.
<i>Nkima</i> , monkey.	<i>Fumbe</i> .
<i>Mamba</i> , a large fish.	<i>Ngonge</i> .
<i>Nsinene</i> , a small green locust.	<i>Namungona</i> , crows.
<i>Lugavwe</i> , kind of lizard.	<i>Nyama</i> , meat.
<i>Ngeye</i> , squirrel.	<i>Kasimba</i> , small wild cat.
<i>Musu</i> , a large rat.	<i>Nkebuka</i> .
<i>Mpindi</i> , beans like dwarf beans.	<i>Ntonyeza</i> , rain drops from the roof.
<i>Endiga</i> , sheep.	<i>Ntalagangya</i> , zebra.
<i>Nkobe</i> , a monkey.	<i>Ngo</i> , leopard.
<i>Mbogo</i> , buffalo.	<i>Ndegea</i> , kind of tailor bird.
<i>Njovu</i> , elephant.	<i>Mpisi</i> , hyena.
<i>Mpeo</i> , gazelle.	<i>Nkenda</i> .
<i>Ngabi</i> , antelope.	<i>Mvuma</i> .
<i>Nyonyi</i> , birds.	<i>Embwa</i> , dogs.
<i>Butikv</i> , a small mushroom.	<i>Nyange</i> , kind of white water bird.
<i>Mvubu</i> , hippopotamus.	

2. There is no distinctive dress, but the children are named by names peculiar to the clan to which they belong.

3. The names may be of animals as *Mbizi*, the pig, or of natural objects as *Msolke*, a rainbow, or after one of the deities as *Mukasa*, god of the lake, or for some peculiarity, *Lubutokyoto*, literally hot stomach or *Musenzalanda*, the slave who sits by the door and gradually works his way into the family.

4. The totem, or *muziro* as it is called by the Baganda, is not regarded by them as sacred, but may not be killed or eaten by any of the clan, though other clans may do so with impunity. They do not freely speak of their *muziro*, nor will they tell you what it is, but refer you to someone else to do so.

5. They believe anyone eating or killing their totem will either die or fall ill or have sores break out all over his body.

The only origin they have of the totems is that one of their forefathers partook of that animal or bird, etc., and fell ill, and from that time it was looked upon as injurious to them, and they took it as their totem.

#### *Birth, Descent, Adoption.*

7. During pregnancy a woman is not allowed to eat salt or hot food, but periodically she is given a special kind of salt which acts as a mild aperient. A few days before she is confined she is secluded and daily rubbed with oil to make all the parts soft and supple. If she is delivered during the day she is taken out into an enclosure at the back of the house and stripped. She then holds on to a post in the ground which is firmly planted for the purpose and is delivered stooping, from behind. If she is confined during the night it takes place in the house.

In the case of a chief who has many wives he does not cohabit with one who is nursing a baby.

9. The husband is free from any ceremony.

#### *Baptism.*

10. When a child or children are to be baptised, two or more families may join in the ceremony. The children may be baptised at any time between the ages of two and eight years old. The ceremony takes place in one of the houses of one of the parties whose child is to be baptised, and in the presence of a goodly gathering of the relatives. A feast is given according to the position and wealth of those concerned; if poor only a fowl will be cooked, but if wealthy an ox or goats will be cooked. The mothers of those to be baptised would have a girdle of plantain fibre to distinguish them from the other women present. The children are brought out of the house and sit on mats in front of the people. The food is then served and the guests and relatives partake, the latter eating theirs in the house. The mothers, however, are not allowed to partake until after the children have been proved to be legitimate. This is done as follows:—each mother at birth preserves the umbilical cord until after baptism; this is now produced well greased, a bowl containing a mixture of milk, beer, and water is brought, and the cord is dropped into it; if it floats the child is legitimate, but if it sinks the child is said to be illegitimate. This process is watched with great interest, and when it is seen to float a cry of “Eh! Eh!” is uttered by all in a shrill tone, and the grandfather then goes through the genealogy of the child, mentioning the male relatives for some generations back. If, however, the child is proved to be illegitimate, the mother is dragged out and severely flogged. A strong girl, a relative of one of those to be baptised, is now brought out and one child is placed on her back; it clings there by its legs round her and its arms passed under her arms and on to her shoulders; a second child is placed on the back of the first, and if there is a

third, that is placed on the back of the second. When thus arranged the bowl with the mixture is brought out and poured over their heads by the grandfather. The baptism over, they can resume their seats. The mothers now sit on a mat with their legs straight before them, and the grandfather takes a piece of the food in a banana leaf in his right hand and a piece of fish in the left hand, and rests his hands on the woman's feet, then goes through the child's genealogy, beginning with his own name, not the father's, and moves the food up nearer and nearer the woman's mouth as he mentions each name until he ends by putting it to her lips. The woman then takes a little of each and is allowed to eat her meal. All the food that is left is divided among the children. Next morning the children are named by their grandfathers. The custom of royalty is to choose for the first-born the name of the great-grandfather, but the peasants may choose any name of a relative. The spirit of the person after whom the child is named is supposed to enter into the child, and according to the prowess of the ancestor so will be the bravery of the child. The children then have their heads shaved and the ceremony is ended.

12. Should the first child born to a chief or a king be a boy it is killed at the birth because it is said to be the heir, and the father will surely die if it is left alive. The father is not told of the sex of the child but simply that it was a still-born one; this saves the wife from any ill-feeling from her husband, who might accuse her of wanting a child to succeed him.

Children born feet first are also killed, as they are said to be the cause of death and the parents will die if they are allowed to live. The bodies of those thus killed are buried in one of the thoroughfares, as are the bodies of witches and outcasts.

13. A child always takes the *muziro* of the father and is reckoned as one of his clan.

14. Adoption is practised, but there is no ceremony. The child is usually sent secretly to the people who adopt it. The reason for this practice was to save the children in case the father did anything wrong and displeased the king, who would at once send and capture the man with his wives and all his children and put them to death. The girls were as a rule taken to be slaves or wives of the king or to whom he chose to give them. The above rule, therefore, applied only to boys. The friend who adopted the child brought it up as his own, but in case he fell into disgrace the child was claimed by the parents and thus saved.

#### *Skin markings.*

18. The only marks or tatuing the Baganda have are what they call *njola*. There is among them no filing or cutting of the teeth, but on the shores of the lake near the Buvumu Islands there are a few women who pierce the lower lip. These are said to be more Bavumu than Baganda.

19. Many of the women have on their stomachs a large W-shaped figure; it extends from each breast to the pit of the stomach, and the point comes to the

centre of the chest. None of the king's wives were allowed to have *njola*, because the women who could bear the pain were said to be capable of killing him. The tatuing was performed by one of the native doctors, who received a small fee which the husband paid. When the woman was well she brought her husband a fowl. The *njola* is said to have been done to please the husband, who could feel it on his body when he had connection with his wife.

21. Only women are tatued among the Baganda.
22. It is only performed for beauty and that only by the married women. No princess nor wife of the king or of the Nsenene clan may be tatued.

#### *Women.*

23. Girls not yet married have a feast, and are not allowed to walk until they are well. Married girls have a present of a bark-cloth and a feast. There is no other ceremony such as that among the Wamegi near the coast, where the girls are deflowered by certain old women.

24. They are not secluded but may not come near a man or touch anything of his or sit on his bed or mat.

25. No woman is secluded during the time of menstruation, but is not allowed to touch anything belonging to her husband or even cook for him until perfectly recovered. If she touches anything of his he will surely fall ill, or if it is his weapons he will surely be killed in the next battle.

26. Menstruation is supposed to be caused by the moon either when new or waning. A woman who does not menstruate is said to be one who kills her husband, and if he goes to war he first spears her sufficiently to draw blood to ensure a safe return.

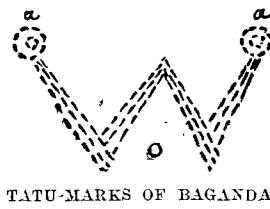
27. A man is forbidden to marry a woman belonging to the same clan as himself except in the case of the Mamba clan and one or two other very large clans.

28. No man was allowed to have sexual intercourse with any woman of the same clan; the infringement of the custom was punishable by death. All women of the same clan as a man are regarded as his sisters.

29. In a case of the breach of the custom the man would be sure to fall ill or if married his children would fall ill and the guilt become known and then punishment would follow.

30. A man may not marry into the clans of either of his parents, with the exception of the Mamba clan, and in that no nearer relatives than second cousins may intermarry.

31. Polygamy has for many years been universal; in the early days of the Baganda it is stated a man was only allowed one wife, then two were allowed, and later a third. For years no more were allowed until the people became lax with regard to the old customs, and introduced reasons for the increase of wives until it



TATU-MARKS OF BAGANDA WOMEN.  
a. a. represent the breasts.

was regarded as a sign of great wealth to have many women or wives. But even then three women were always chosen out to be the true wives of the chief or king, and all the others were regarded as their assistants.

32. Princesses, who were never allowed to marry, but were regarded as the king's wives, constantly committed adultery, but if found out were put to death. However one princess, who was given the title of Lubuga ("king sister") and was looked upon as a king, or as we should say queen, took as many men as she liked, and though she was not officially allowed to marry it was commonly said that all Baganda was her husband. The dowager queen also did the same thing, but these were the only two whom the king and people allowed to have more than one husband.

33. Polygamy was the outcome of wealth; a man might not be able to conceal cattle but he could get women and hide them away and not excite the envy of the king or chief. A chief feared the king and therefore instead of collecting numbers of cattle he bought women.

34. In the case of a chief a messenger is sent and sounds the parents to see if they are agreeable to the match; if they consent then the girl is asked. In some cases the girl is first consulted, but this is not the usual form. If both parties agree a quantity of beer is sent to the parents as a token of the betrothal, and later the marriage dowry is discussed, and the amount settled by the parents and the relatives. The beer is a most important part in the betrothal and legalises it; in after years if any dispute arises and the legality of the marriage is questioned it is always sufficient to say beer was given and accepted.

Peasants often obtained wives from their masters as tokens of favour, or as a gift for service. Not infrequently they got them by capture during war.

35. The usual custom is for each man to have his own house and take his wife there at once. Few women care to marry a man who has no house and garden, the latter being looked upon as the woman's right, and in fact being the chief cause for a man marrying that he should get food well cooked.

36. The bride is the only one to make any preparations for marriage; she is for six days well oiled all over. The oil is rubbed in to make the skin soft and smooth. On the day of the marriage and the following day the bride does not eat much food but does not fast.

37. When the dowry has been paid and the relatives are satisfied the friends of the bride gather at the parents' house and those of the bridegroom at his house, and after dark, about eight o'clock at night, the bride is carried off to her husband. She is bedecked with beads, bracelets, anklets, etc., many of them being borrowed from her friends for the occasion. When half-way the party is met by a deputation from the husband, his sister being his representative, the other party stop and the bride's brother comes forward and takes the bride by the right hand, and gives her over to the bridegroom's sister. Presents are then given to the bride's party according to their rank, and they return home, leaving her to be taken on by the bridegroom's party. One girl accompanies the bride who is called

the Mperekezi ; she remains three days and then returns home. When the bride reaches the door of the house in which her husband is, she refuses to enter it until she receives a few cowrie shells ; she then enters the room but will not sit until she receives another five or six cowries. Food is next served, but the bride will not eat until five more cowries are given her by her husband. The cowrie shells are a token of his love to her, and if he refuse to give them she is free to return home. There is no promise made by the husband that day, though the sister has made a promise to the bride's brother that his sister will be well treated and proper care taken of her.

38. The bride is veiled when she goes to her husband and continues to wear the veil for a month after marriage. There appears to be no ceremony either when she is veiled or unveiled.

40. The little girl who accompanies the bride may be regarded as a brides-maid. She remains with the bride for four days and seldom goes out of her presence, and during the time she remains the husband and wife sleep in separate parts of the house, as the Mperekezi sleeps with the bride. The object of the girl's presence is said to be to prove the bride is not a slave who has no one to care for her or defend her rights. At the end of four days the Mperekezi returns home taking with her all the armlets, anklets, necklets, etc., and is given a present of 100 shells. When she leaves the place she goes out as the bride, returning to her old home, and is welcomed by the relatives as the bride who left them. At the end of a month or sometimes two months the bridegroom chooses four men, who come to his house, and he promises in their presence, and before his wife, to care for her and treat her with all due consideration. These men are then regarded by both parties as the guardians of the marriage rights, and if there is in the future any unpleasantness, or if either wrongs the other, or if the wife commits adultery, they are called in to settle the matter, and if possible to reconcile them. After the promises are made there is a second marriage feast and the wife takes her place as the mistress of the house.

In the case of peasants the bride only remains in seclusion from two to four days. Her relatives then bring her presents of food and fowls, etc. She cooks these and they have a feast in honour of her coming out of her seclusion. She afterwards goes about her regular duties.

42. The man may not cohabit with his wife during the time the Mperekezi is present, that is for four days.

44. No one but the husband was ever allowed to deflower a girl ; and girls were carefully guarded lest any one should do so. There was an old custom of sending to the parents a present of meat wrapped up in the bark-cloth with the blood from the girl which had flowed during her first connection with her husband. The meat and bark-cloth were a token she had remained pure to the time her husband took her. The girl was given the remainder of the meat from the animal killed in honour of the event, and was also given a bark-cloth.

45. The only time they abstain from their wives is during the menstruation,

and if a man has a good number of wives he will also do so during pregnancy and whilst she is nursing ; during the time of mourning it is customary to abstain from sexual intercourse.

46. For a time during the reign of Mutesa, wives were exchanged among the greater chiefs, and they also sent them to the king, but this appears to have been introduced by Arabs.

46A. The widows of a chief were divided up into four lots :—

1. Those to guard the tomb.
2. Those the heir took.
3. Those who were given to the king.
4. Those who were given to the clan.

Those for guarding the tomb were the ones who had borne children to the deceased. Those for the king were the pick of the virgins who had never known a man. The heir then took his pick of those who were left. In his case those chosen were at liberty to refuse him if they liked ; in such a case the relatives had to refund the dowry which had been given.

There was a custom for all the widows after the funeral to gather together in the house, and the centre post was taken out and put into the fire and all round it sat there warming themselves. Those who had relatives were then taken from the fire by those who claimed to be relatives, and those who were left were slaves because there was no one who claimed them. If a relative on those occasions was left at the fire she could not afterwards be reclaimed ; she was for ever a slave. The taking down and burning the main post was to show the owner was dead and the house broken up, and the widows sat there in sorrow, being left desolate until reclaimed by their relatives.

47. No man may see his mother-in-law, or speak to her face to face. If he wants to have any communication with her it must be done by a third person or through a wall or closed door. If he breaks this rule he will be sure to be seized with shaking of the hands and general debility.

They may not see or speak to one another, because of the relations in which they stand to the wife ; it is said to be like looking upon the mother's nakedness.

The woman may speak to her father-in-law, but may not take his hand or touch him or even hand him anything.

48. Brothers and sisters may speak to one another ; there is no restriction whatever on their intercourse.

#### *Disease and death.*

Death is attributed to Walumbe, a spirit which came from Katonda (God) when Kintu the father of the Baganda and their great ancestor came from heaven. They say when Kintu first came to the earth Katonda gave him a parting feast and then commanded him to go to the earth and inhabit it. He gave him one of each thing he was likely to require, a cow, a goat, sheep, fowl, a plantain, grain of maize, etc. His parting word was to start in the morning early and by no means

to let his brother Walumbe know he was going, and if he forgot anything he was not to return for it. Next morning Kintu and his wife Nambi Natutululu set off to the earth, and as they were descending Nambi remembered she had forgotten the bulo (a small grain, the food for the fowl). She told her husband, but he refused to give her permission to return and reminded her of the parting word of their father. She however would not listen to Kintu, but ran back and snatched up the grain which was at the door of the house, but as she was hurrying back to rejoin her husband Walumbe met her and asked, "Where are you going, my sister, so early, and leaving me behind?" Her efforts to shake him off were in vain, and she had to go on to her husband Kintu with Walumbe. Kintu was very angry and rated her soundly, but the mischief was done and Walumbe went with them. In the process of time when they had children Walumbe killed them, and Kintu then tried to catch him and put him to death, but he fled to a deep ravine in which is a cave and remained there to the present time. The place is called Ntanda; it is in the province of Singo. To the present day if a person dies from any complaint not understood they say he died of Lumbe.

50. As disease is caused by witchcraft or from the direct influence of some spirit the Mandwa (priest) is called in to divine the cause and tell the people. If he says the disease is caused by some evil-disposed person then that person is caught and fined or in some cases killed. If it is the influence of an evil spirit then they have to try to propitiate the spirit, a goat if it is a chief, or a fowl if it is a poor person, or if too poor for this then a goat skin or a fowl's feather may be employed. The person if possessed may thus be freed; but if the spirit is not thus expelled then they get some kind of herbs which smell very strongly and burn these in the house, and the spirit (which cannot bear the smoke) is driven away. Women seem to be the ones who are mostly spirit-possessed. Men may be made ill by some spirit or the children killed either at birth or soon after; in such a case it may be the man has not interred some relative in a becoming manner, and the spirit is haunting him for this cause; or if it is his children who are being killed then it is his aunt who has some grudge against him.

51. These spirits do not possess the people, but take up their abode in the huts at the top of the centre-pole, and from there they do all the mischief. The Mandwa is in this case called in to tell the cause, and he first finds the abode of the spirit and commands an offering to be made to it; either a goat or a fowl according to the rank of the individuals; these are kept alive and are never allowed to be killed or sold, and if they die they must be replaced at once. In case the spirit is not then satisfied a second Mandwa, of greater skill than the first, is called in, and he says the spirit must be caught. To do this he brings a horn either of a cow or of a buffalo, and in it he places a cowrie shell and either a snail shell or a seed of the wild plantain in the small end, and puts the horn on a long stick and raises it up the post. During the whole process the house has to be in darkness and only a few people in the room. When the Mandwa has reached the top of the pole with

the horn he shakes it about until the friction of the shells inside make a squeaking noise. This he declares to be the spirit in the horn, and it is quickly lowered and a piece of bark-cloth thrown over it, and the horn put in a water pot or gourd and carried off to the river, wherein it is thrown, and the troublesome spirit drowned, or it is taken to the forest and thrown there and left bottled up, to be burned next time the grass fires take place.

52. There are other methods of curing sickness, however; in case of a chief who has some evil attached to him he may be advised to bring a cow which is killed near the house, and the blood is caught and some of it is sprinkled on the door posts, and a stout stick on to which some grass is fastened is also besprinkled and placed across the doorway; the sick man who has been brought out to witness this is then besprinkled on the forehead and on either shoulder and on his legs below the knees. When he is besprinkled he has to jump over the stick in the doorway, and as he does so he lets his bark-cloth fall off; he must not look behind him at all but go straight on. The Mandwa then takes up the meat and the bark-cloth and goes the opposite way, never looking behind. The meat he eats with his friends in the open space before the chief's house. The evil is then atoned for and clings to the bark-cloth. In other cases he is taken into the garden after the door-posts have been sprinkled, and the Mandwa takes a plantain stem some six feet long and makes a long cut down it, and opens it wide enough for the man to pass through it. As he passes he leaves behind his bark-cloth and walks straight on into the house. The Mandwa then takes the plantain stem and carries it into the road and throws it there. The meat of the animal, cow, or goat, he takes and eats in the open space before the house. In the case of peasants who cannot afford a goat for the blood, they make a mixture of wood ashes and water with which the door-posts and the man are sprinkled. When the person recovers it is customary to give a goat or fowl to be kept alive as the property of the spirit.

54. The ghost is greatly feared; it is thought it takes up its abode in the hut on the longest pole, but only the spirit of the aunt or of some relative not properly interred, that is not with sufficient pomp or honour, is feared. These latter are greatly feared; they are said to wander about for a few days, perhaps a couple of weeks, then they come and take up their abode in the house and begin to make the inmates suffer. Usually the head of the house is stricken with some disease and the Mandwa has to divine what is the cause; if it is not some person who has bewitched him then it is supposed to be a spirit, and the offended spirit has to be found. This is done by gathering all the information he can from every source. When they are satisfied as to the cause of illness they first try to propitiate the spirit by offerings, and if the person recovers then they say the spirit has gone and is satisfied, and the grave is carefully repaired and kept for the future. Should however the spirit continue to trouble the man then they have to apply to some other Mandwa to come.

The spirit of a relative resents very strongly the corpse being thrown into the grass and not being buried, and even a slave will haunt a house for this offence.

There are stories told of two chiefs who threw out the corpses of their slaves and left them to the wild beasts in the grass ; the spirits came to them and would not be propitiated until in the case of the Katambala he consented to have his own body buried only in a cow hide and near the forest and not in the family grave. For years the Katambala has been thus buried, each successive chief has from fear agreed to this mode of dishonourable burial. The Kaira, a chief in Singo, has also for some years not been allowed to be buried owing to one of the former chiefs throwing out a slave's corpse; these chiefs are taken to a hill called Mugulu and the body, which is tied up in a cow hide, thrown over a precipice and left there.

55. The late King Mutesa also had a spirit which haunted him for some years ; this was said to be the spirit of one of his wives ; she was the favourite and he had some words with her and ordered her to be cut up. This was done and her spirit then refused to permit the remains to be buried ; it appeared to the king by night and made him have them removed from one place to another, and when he built a large house in honour of the spirit it demanded first one slave, then another, or cattle until it became very wealthy. The remains were never buried but placed in the tomb built for their reception. Then the spirit would not allow the king to take any other woman to wife, and also told him he would suffer from certain diseases, all of which is said to have come about, and the spirit at last told him when he was going to die.

56. When a person dies the corpse is laid in state in his principal house. The widows and mourners all stand around and the eldest son is brought in. One of the relatives places in the right hand of the corpse the seeds of the *Nsuju* (a kind of vegetable marrow), and the son takes them out with his lips and chews them; he then spits out part of them over the corpse and the rest over one of the widows who has either borne no children or only girls. This woman then becomes his wife. This ceremony is to show to all the mourners the deceased has a son, for no one but his son may perform the above ceremony. This ceremony is called *Kulumira Mpambo*. When the corpse is being interred if the deceased has a grandson he comes and cuts off a corner of one of the bark-clothes which has been left unfolded purposely, and takes it away with him ; he then throws the knife with which he cut the cloth at one of the widows, who becomes his wife. This woman must also be one who has borne no male children to the deceased.

During the time of mourning there is no sexual connection allowed among the mourners; the period of mourning may be from ten days to a month according to the rank of the dead person. When it is over the relatives bring large pots of beer and place them at the door of the house in which the mourning is held, then some plantains are cooked and with them are mixed some of the kind only used for making beer to show it is the food of sorrow. Each of the mourners take a little of this food and the remainder is thrown down and trodden under foot in the dance which then takes place. The dance goes on all night, and early next morning,

when it begins to get light, the mourners cut down the main post which is in the centre of the house and put it on the fire. This shows the mainstay is gone. Round the fire sitting on the post gather all the widows who have no relatives or who are of another tribe. All the widows who have relatives stand round the room ; should one of the widows who has a relative present go there and sit on the post he would at once remove her or otherwise she would be regarded as the sole property of the heir. A fowl is cooked and divided up and each man eats a little and the widows eat a small kind of fish like a sprat ; some only smell it and throw it down. When this ceremony is over the heir is brought and stands at the door of the house, and his uncle (a brother of the deceased) comes and throws over him a bark-cloth, and announces to all those present : "This is the heir of the deceased." Each person then comes and ties on his right wrist a few cowrie shells, and all those who have unpaid debts come to him and announce the amount the deceased owed to them. The heir is next presented with a shield, a spear, and a large knife, and a girl is also given to him as a wife ; she carries a smaller knife. They next go to the garden and cut a bunch of plantains of the kind from which beer is made, and this is sent to be made into beer for the people to drink, who rejoice that the mourning is ended. When they return a bark-cloth is placed inside the house in the place of the master of the house, and the heir goes and sits on it. All who come to call and condole with him in the loss of his parent give him a few shells which they place on the bark-cloth.

In the evening a goat is killed and cooked. The liver is cooked separately and given to the orphans and the widows ; all the mourners who are clean, that is, have not had sexual relations, are allowed to partake of the feast. If any one, however, who has had sexual relations, eats of the meat, he will be sure to die. During the mourning the hair is unkempt and the finger nails left to grow long and ashes mixed with water are rubbed on the chest. A girdle of dry plantain leaves is worn and plantain fibre placed on the floor and the plantains peeled at the door of the house and the skins left there. All the partitions of the house are also removed and the whole house thrown open. When the mourning is over the heads of all are shaved and the nails trimmed and the house cleaned and renovated. The mourning is then at an end.

#### *The Death and Burial of the King.*

When the king becomes seriously ill few people are allowed to visit him, nor are the ordinary people told the nature of the illness ; it is always called influenza. Formerly all the wives were allowed to wait on the sick king but on one occasion the wives in their sorrow fell upon the sick man and killed him outright, and after that only a few to act as nurses and the Katikiro were present during the last days of the king. Directly after death the body is washed and the limbs straightened out and the body wrapped in bark-clothes and placed in one of the large houses in the king's enclosure. The king's sister, who holds the office of Nalinya (king's sister), is the guardian with some of the executioners. The large drums kept for

the purpose then beat out the news of the death and the fire at the entrance to the palace, which is lighted every night when the king is in the capital and in health, is extinguished; these are the signs for the people to put on mourning. They at once rush to the bananas for the dried leaves and put on old bark-clothes with a girdle of the dried leaves as the national sign of sorrow and mourning for the king. Then all rush to the king's enclosure, where they remain all night. In the meantime the Katikiro has called up Kasuju, who is the guardian of the princes and together they choose a new king. Should they differ about the prince to be chosen they fight it out, and the stronger party places their prince upon the throne. When the new king is chosen he chooses a new Kago and with the Mugema (keeper of the king's tombs) and the Sebaganzi (brother of the king's mother) the king's uncle, go to the house where the body is lying in state and the king takes a piece of bark-cloth and covers the late king's face. He then with all the people except the Mugema and Kago who remain to guard and look after the dead, goes to Busiro to a place called Budo where there is a large stone on which the new king sits to be crowned.

The body of the late king is taken to Busiro the Mugema's province to be embalmed and is kept there for two months for this purpose. When this period has elapsed it is taken to a hill which has been chosen for the tomb and a house built there for its reception. In this hut a kind of bedstead is built on which a number of bark-clothes are spread and on these the corpse is placed, more bark-clothes are put on the top to cover it and then the door is closed. Around the house a strong fence is made and a number of men and women who held office under the late king are put to death, the men on the right side and the women on the left. They are the Kauta the king's cook, the Seruti the brewer, Sebalija the chief of the herdsmen, and Kalinda the head of the men who tended at the entrance of the enclosure. The women are, Omufumbiro cook, Omusibika keeper of the king's bed, Omusenero drawer of the king's wine, Omulidamazi the keeper of the water. These are brought to the door of the tomb with their hands tied behind them and are clubbed to death; their bodies are not removed but left where they fell, and the strong fence is to keep off the wild beasts. A second fence is then made to enclose all the houses of the keepers of the tomb; these may be fifty or more, all of them women who have been the late king's wives. When the fence is completed a number of prisoners who have been imprisoned for various crimes by the late king, are brought and killed within the second fence and their bodies left as the former were.

After a period of five months the tomb is visited by the new king's uncle and three chiefs Kago, Mugema, and Sebata with a few soldiers, and Gunju, one of the party, enters the tomb and severs the head from the late king's body and brings it out and puts it into an ant heap for the insects to eat off all the flesh. The skull is then taken and washed in a special river Ndyabuworu. The door-posts of the hut are taken out directly the skull has been removed, and the roof allowed to come down so as to prevent anyone else from going into the tomb. The skull

after being cleaned is filled, first, with wine which Kalogo, one of the late king's priests, drinks, and then with milk. This man is especially marked out for the spirit of the late king to possess. Up to this time the spirit has not entered any dwelling but now is to have a place of its own. The skull is then taken to the new king and after he has been told they have brought the king he sends away the skull to the tomb, but the lower jaw is placed in a jar made for the purpose, and this is covered with bark-clothes, and these are made up into the shape of a man and decorated with beads, etc. The skull is taken and put back in the tomb, but the jaw-bone represents the king as still alive and a house is built for its reception.

In this house, which is also bee-hive shaped, there are two rooms, the outer one in which the ordinary people may come and an inner one where the spirit of the departed king is said to dwell. In front of the partition is a throne set and covered with lion and leopard skins, and again in front of this is a rail of spears and shields and knives, most of them of copper and brass and beautifully worked. These keep the entrance to the throne sacred. When the Mandwa who is to be possessed of the king's spirit wants to hold converse with the people in the king's name, he first comes to this throne and speaks to the spirit inside the inner room and tells the business of the people; he then smokes one or two pipes, and after a few moments he begins to rave and is then possessed with the spirit, and speaks in the tone of the late king and speaks in the manner as he would have done. The spirit after making known its wishes returns to the inner room and the man can go away as before. The possession is only periodical.

In this house all the king's wives who bore him children live, and in houses all around it in a large enclosure are other women who were his wives. Their duties are to keep the place in order and look after the large reception room in which there is a carpet of grass which is of a scented kind and so laid that not one blade of grass is out of order. Near the enclosure is the old Nalinya or queen sister who has control of all the place, and with her are several of the late king's chiefs, who now have been pensioned off and hold a piece of land and bear the same title as of old. This place is kept in repair by the new king and all the fences kept in good order. If any of the women die they are replaced by the relatives of the deceased from their clan.

THE JAPANESE *GOHEI* AND THE AINU *INAO*.

By W. G. ASTON, C.M.G.

[READ AT THE MEETING, JUNE 19TH. WITH PLATE IX.]

SHINTO, the old native religion of Japan, though it contains other elements, is substantially a nature-worship, the chief deities of which are the Sun-goddess, the Moon-god, the Thunder-god, the Wind-gods, and various gods associated with growth and the production of food. These natural powers are conceived of as having human sentiments, and their worship comprises the offering of such objects as would be acceptable to human beings, in order to testify the gratitude of the donor or with the object of bringing down future blessings. Probably the more enlightened worshipper is well aware that the gods make no use of the things presented to them. But this does not affect the real object which he has in view, namely, to make his hopes or gratitude visible to gods and men.

Shinto offerings are of the most varied character. They include weapons, mirrors, tools, agricultural implements, lands, temples, slaves, riding-horses, jewellery, food and liquor, and wearing apparel, whether in the form of pieces of cloth or of the raw material for their manufacture. It was out of this last description of offerings (called *nusa* by the Japanese) that the *gohei* were developed. The clothing of the ancient Japanese consisted of silk, hempen fabrics, and *yufu*, a stuff woven from the inner bark of the paper-mulberry. At first the offerings consisted of so many ounces of hemp or bark-fibre or so many pieces of cloth. But later they assumed a more specialised and conventional form, of which the accompanying drawing (Fig. 2) will give an idea.<sup>1</sup> These were called *Oho-nusa* or "great offerings," and are still in use on important occasions, though for ordinary purposes they have been superseded by the simplified form (Fig. 3), known to us as *gohei*. The *Oho-nusa* consist of two wands, placed side by side, from the ends of which depend a quantity of hempen fibre<sup>2</sup> and a number of strips of paper. One of the wands is of the *cleyera japonica*, or evergreen sacred tree. The other is of bamboo. Their use is connected with an old Japanese rule of etiquette that presents to a superior should be delivered attached to a branch of a tree, the

<sup>1</sup> A slightly different form of *Oho-nusa* is figured on p. 35 of a valuable paper on "Ancient Japanese Rituals," contributed by Dr. Karl Florenz to the *Transactions of the Asiatic Society of Japan*, December, 1899.

<sup>2</sup> Reminding us of Homer's *στέμμα θεοῖς*, which was of tufted wool attached to a wand (*σκῆπτρον*), *Iliad*, I, 28.

object of which was no doubt to mark a respectful aloofness of the giver from the receiver. The paper-strips represent the *yufu*, or mulberry-bark fabric. The use of *yufu* for clothing having become obsolete, owing to the introduction of cotton, paper, which in Japan is made of the same material, was substituted for it. In the *Gohei*, the hemp and one of the wands are omitted. Another form of *nusa*, called *Ko-nusa* (little *nusa*), or *Kiri-nusa* (cut *nusa*), consists of paper, with leaves of the sacred tree, chopped up and mixed with rice. Travellers in ancient times carried this mixture with them in a bag, and made offerings of it to the local deities along their way. It was also used when in danger from shipwreck.

The reason for the prominence given to the *gohei* almost to the exclusion of other kinds of offerings is to be looked for in the fact that the materials for clothing which they represent were the currency of ancient Japan, in which all values were estimated. They have therefore a representative character. We are told, for example, that in A.D. 1151 a wild boar for offering at a certain Shinto festival being un procurable, eight pieces of cloth (its estimated value) were substituted. The representative quality of the *gohci* is further illustrated by the circumstance that *gohei* made of copper cash (Fig. 5) were known in later times.

Along with the alteration in the form of the *nusa* to the present *gohei*, there came a change in the mental attitude of the worshipper. Originally mere offerings, they were at length by virtue of long association looked upon as representatives of the deity. Scholars like Motoöri and Hirata denounce this view as a corruption of later times, but it is no doubt at present the prevailing conception. Hepburn's Japanese dictionary knows no other. It is illustrated by the fact that instead of the worshipper bringing *gohei* to the shrine, these objects are now given out by the priest to the worshipper, who takes them home and sets them up in his private *Kami-dana* (god-shelf) or domestic altar.

A further step is taken when it is believed that on festival occasions the god, on a certain formula, called the *Kami-oroshi* or "bringing down the god," being pronounced, descends into the *gohei* and remains there during the ceremony, taking his departure at its close. In the vulgar Shinto of the present day this belief in a real presence of the god is associated with hypnotism. The subject or practitioner holds a *gohei* in his hands, and the violent, unintentional wobbling of the *gohei*, as well as the hypnotic, inspired condition of the subject which ensue, are attributed to the presence of the god, which enters his body by this channel. Mr. Percival Lowell has given an interesting account of this and associated practices in his *Occult Japan*.

Associated with the belief in an actual presence of a deity in the *gohei* is their use in the *Harai* or purification ceremony, when they were flourished over or rubbed against the person to be absolved of ritual uncleanness. It is stated by Mr. Fukuzawa, in his recently published autobiography, that when the late Duke of Edinburgh visited Japan in 1870 he was subjected to this ceremony before being admitted to the Imperial presence. No such ceremony could possibly have been permitted in their presence by the British officials concerned; but at a

convenient distance, rites with *gohei* and other Shinto appliances were performed in order to exorcise any evil spirits or influences which might have accompanied the Prince from abroad.

There is a still further stage of belief, not, in so far as I am aware, illustrated by the *gohei*, in which the object which has begun by being an offering ends by being a distinct god. The *gohei*, however, are not the only material receptacles for the Shinto divinities. Almost every shrine contains a *Shintai* or "god-body," also called a *Tama-shiro* or "spirit-representative." The *Shintai* has points of resemblance to the Greek *ἄγαλμα*, which was originally, as its derivation shows, a votive offering. It is usually packed away in a box, the contents of which are sometimes unknown even to the priest, and may consist of a mirror, a sword, a string of beads, a curious stone, a pot, a bow and arrows, etc. Some of these objects, which it is clear were originally merely offerings, have attained to the rank of independent deities. Thus the mirror, which is the *Shintai* of the Sun-goddess, figures in the ancient mythical records not only as an offering suspended to a branch of the sacred tree but as an emblem or representative of the goddess and even as "the great deity worshipped at Ise." It is also the object of a separate cult under the name *Ame Kakasu no Kami*. The sword *Futsunushi*, presented by the Sun-goddess to the first Mikado, Jimmu Tennō, has numerous shrines dedicated to it. Another sword, called *Kusanagi* or "the herb-mower," has been worshipped for centuries at Atsuta, near Nagoya. It was this sword which *Susa no wo* found in the tail of the great serpent slain by him to rescue a Japanese Andromeda, and sent as an offering to his sister, the Sun-goddess.

The history of the *gohei* and *Shintai* lends strong confirmation to Mr. Herbert Spencer's view that fetishism is a later religious development.

May we not trace some sort of analogy between these Japanese ideas and the Christian conceptions of the eucharistic bread or wafer as a sacrificial offering, an emblem, the seat of a divine presence, or as *le bon Dieu* Himself? The history of the Indian god Soma also presents points of analogy.

The *inao* are to the Ainus of Yezo what the *gohei* are to the Japanese. They are made of willow wands whittled at the top into a mass of shavings in the manner shown in the illustration (Fig. 4). If they are compared with the *Oho-nusa* (Fig. 2), it will be seen that there is a general resemblance of form, the differences being attributable to the different material used. The *inao* no doubt had their origin among a ruder and poorer people, with whom paper was difficult to procure. That they are directly traceable to Japan is further shown by the fact that the alternative Ainu name for *inao* is the Japanese word *nusa*. This is by no means the only evidence of a close relation between the Ainu religion and Shinto. The important Ainu words *Kamui* (god) and *ongami* (prayer) are also of Japanese origin. Another point of agreement is the pre-eminent position given in both religions to the Sun-goddess and the recognition by both of a dual principle in the pairs of spirits—the *aratama* (rough spirit) and *nigitama* (gentle

spirit) of the Japanese, the *shi acha* (rough uncle) and *mo acha* (uncle of peace) of the Ainus.

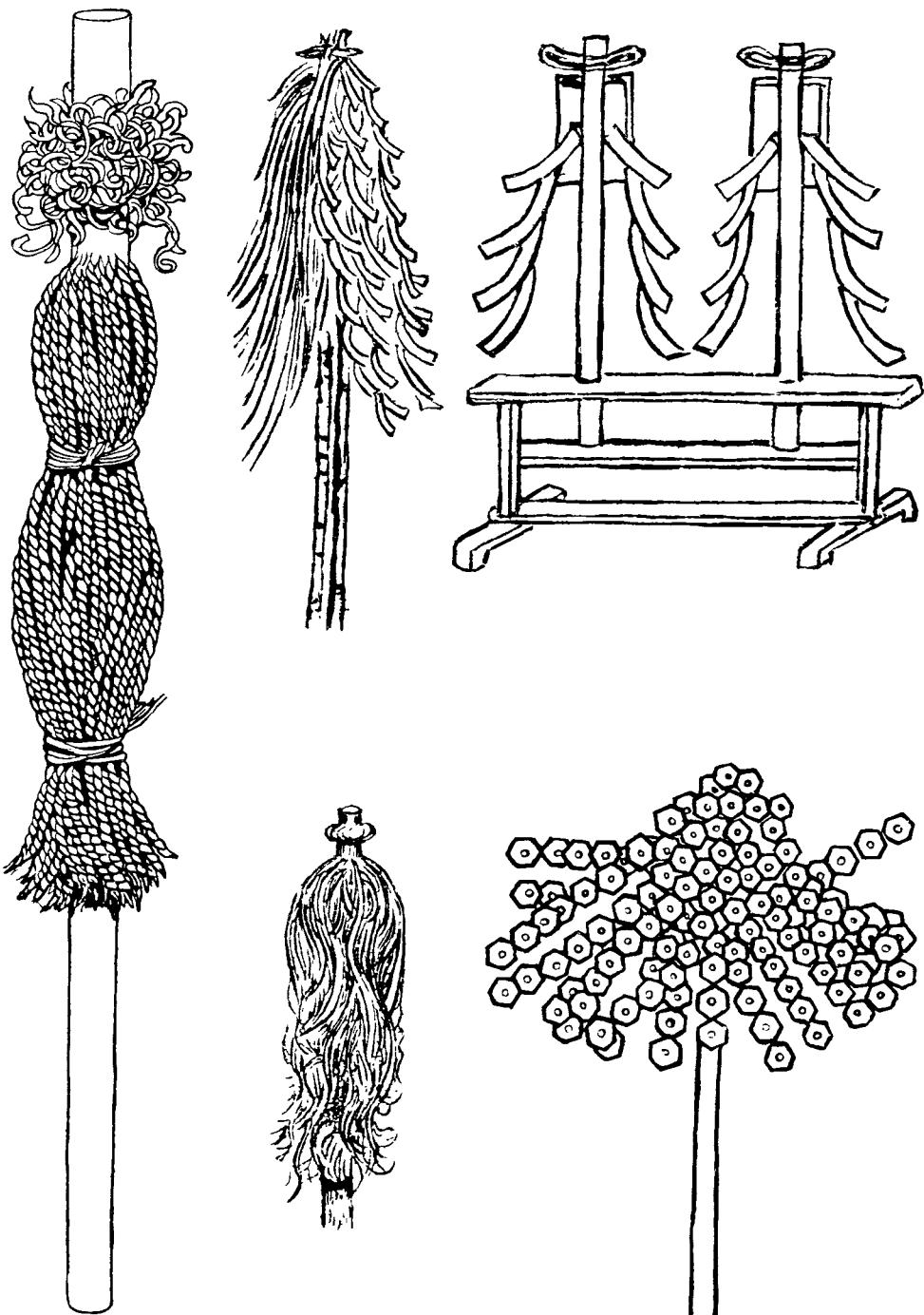
There is, moreover, another curious link between the Ainu *inao* and the Japanese *gohei* or *nusa* which has a special interest of its own. We learn from the *Makura no Sōshi*, a work written about A.D. 1000, that it was then the custom, during the spring festival, for the boys in the Imperial Palace to go about striking the young women on the loins with the potsticks used for making gruel<sup>1</sup> on that occasion. This was supposed to ensure fertility. It reminds us of the Roman practice at the spring festival of Lupercalia, alluded to by Shakespeare in his *Julius Cæsar*—

“Forget not in your speed, Antonius,  
To touch Calphurnia; for our elders say  
The barren, touched in this holy chase,  
Shake off their sterl curse.”

Now the Japanese antiquary and novelist Kiōden, in his work entitled *Kottoshiu*, written about a century ago, informs us that this custom was at that time still in vogue in the northern province of Echigo. He gives a drawing (Fig. 5) of the sticks used for the purpose, which, it will be observed, are in every way similar to the Ainu *inao*. For the explanation of this coincidence we are left to conjecture. It seems possible that the persons who first used these objects instead of the older potsticks were familiar with them as cheaper substitutes for the hemp or paper *gohei* or *nusa*, and that the practice dates from a time when they were no longer considered as offerings but as embodiments of a divine presence, and therefore naturally possessed of greater potency than common potsticks. One name for them is *iwai-gi*. *Iwai* means taboo, religious abstinence, worship, sacred, holy, congratulation, blessing; and *gi* is for *ki*, wood or stick. Another name is *Kedzuri-kake*, which means “part-shaven.” A Japanese book of the early eighteenth century informs us that sticks resembling the wands used for offerings at the purification ceremony were part-shaven, and set up in bundles at the four corners of the Gion shrine in Kioto on the last day of the year. The priests, after prayers were recited, broke up the bundles and set fire to the sticks, which the people then carried home to light their household fires with for the new year. The object of this ceremony was to avert pestilence. These sticks were also called *Kedzuri-kake*.

Authorities are not agreed as to the precise character of the *inao*. Most travellers, including Miss Bird, usually an accurate observer, describe them as household gods. On the other hand, the Rev. John Batchelor, who resided for eight years among the Ainus and was well acquainted with their language, says in his *Ainu of Japan*: “It is no matter for surprise that travellers have taken

<sup>1</sup> The gruel was of small red beans. Red is a masculine colour and is calculated to correct the feminine (or gloomy) influences remaining over from the winter season. But this is perhaps a later hypothesis only.



1. IWAI-GI.

2. OHO-NUSA.

4. INAO.

3. GOHEI.

5. GOHEI OF COPPER CASH.

GOHEI AND INAO.



the *inao* to be gods; in fact, it would have been a great wonder had they not done so. But enough has been said to show that in no sense can the willow-wands be called gods. They are merely offerings to the various deities.”<sup>1</sup> Mr. Batchelor’s view is doubtless in the main correct. At the same time, when we remember the craving of some humanity for a tangible, visible, concrete object of worship, and the fact that in Japan and elsewhere the offering has been known to pass into the god, we may suspect that the contrary opinion held by Miss Bird is something more than mere surmise. It would not be surprising to find that there are some Ainus to whom the *inao* are actually gods.

<sup>1</sup> In a paper contributed by Mr. Batchelor to the *Transactions of the Japan Asiatic Society* in 1895, he modifies the statement quoted above, and admits that in some cases the *inao* are direct objects of worship, or, to use his own words, “genuine fetiches.”



## NOTE UPON THE NATIVES OF SAVAGE ISLAND, OR NIUÉ.

By BASIL THOMSON.

WHEN Cook discovered Savage Island, he found it impossible to establish communication with the natives: "the endeavours we used to bring them to a parley were to no purpose; for they came with the ferocity of wild boars, and threw their darts." The Rev. John Williams, during his memorable voyage in the *Messenger of Peace*, in 1830, recruited two Niué boys, and subsequently sent them back to the island as teachers, but, after a time, influenza having broken out among the natives, and the two youths being accused of bringing it from Tahiti, one was killed together with his father. The other escaped in company with the boy who returned as a Christian teacher in 1848. Dr. Turner, who visited the island in 1848 and in 1859, writes, "Natives of other islands who drifted there in distress, whether from Tonga, Samoa, or elsewhere, were invariably killed. Any of their own people who went away in a ship, and came back, were killed, and all this was occasioned by a dread of disease. For years after they began to venture out to ships they would not immediately use anything obtained, but hung it in the bush in quarantine for weeks."

Dr. Turner had great difficulty in landing the Niué teacher trained in Samoa; armed crowds rushed down to kill him; they wanted to send his canoe and his chest back to the mission ship as soon as they were landed, saying that the foreign wood would cause disease among them. It is possible that an epidemic following the Tongan invasion, or the arrival of castaways from other islands, had engendered this dread of disease that led to so murderous a system of quarantine. The only tradition of a visit from foreigners that seems to have an historical basis, is that recording the invasion of the Tongans. According to the Niué tradition, the natives awaited the Tongan attack behind a chasm, a rent in the limestone roof of a cave near Alofi, which they had cunningly concealed with boughs. The Tongans, ignorant of the pitfall, attacked desperately, and were precipitated into the cave and killed. The cave was shown to me, and some human bones were unearthed in proof of the story, but seeing that until recently caves were the usual places of burial, they were not convincing evidence. A Tongan tradition evidently refers to the same event.

At a date that may be computed by generations as about 1535, Takalaua, the King of Tonga, was assassinated, and his son, Kau-ul-u-fonua, pursued the murderers from island to island until he caught and slew them at Futuna. Among

the islands in which the murderers took refuge was Savage Island, and here the pursuers landed upon a rock separated from the mainland by a narrow chasm, across which the enemy had laid boughs. But in this version, as might be expected from a Tongan narrator, they overleapt the chasm, and put the native army to flight—a more probable result of the battle when the relative prowess of the two peoples is compared. There is another Tongan tradition of a canoe belonging to the King of Tonga drifting to Savage Island, but the tradition is too fragmentary to warrant any attempt to fix the date. But the facts that the Savage Islanders use the word “Tonga” to denote all foreign countries, and that “Tui Tonga” was the title of the best known of their kings, point to an intercourse with Tonga in comparatively remote times.

On the other hand, it is quite clear that the Savage Islanders are not a mere offshoot from the Tongan stock, nor even pure Polynesians. The institutions of Tonga are a dominant aristocracy; those of Niué are republican. In Tonga every public ceremony was accompanied by a highly elaborate ritual; in Niué dignity and gentle manners were unknown. The Tongan mode of warfare was frontal attack by desperate charges; the Niuéan, a series of feints intended to frighten the enemy, and entice him into ambush. The physiognomy of the people is not pure Polynesian; there seem to be two types, the one Polynesian, and the other Micronesian, with all the gradations of hybrids between the two races, and I question whether the island was not originally peopled from the Line Islands, and the population modified by successive immigrations from Tonga, Raratonga, Aitutaki and Samoa. The language, it is true, appears to be very much like the Tongan, for I was able to understand the gist of everything that was said, but the immigration of a superior race has often had the effect of impressing its language and laws upon the inferior long before any change takes place in the physical type. In Ongtong Java, for instance, there is a Melanesian race speaking a Polynesian tongue, the result of intercourse with the crew of a single canoe which drifted thither from Tonga, in the latter half of the eighteenth century.

The institutions of Niué seem always to have been republican. In ancient times the ruling power was held by the “toa,” or fighting men, and the party that happened for the moment to be in the ascendant elected a king to be their mouth-piece. It was a dignity that cost its holder dearly, for the object of the opposition party was invariably to kill the king, and a violent death had come to be so often the appanage of royalty that for eighty years before the introduction of Christianity, and the consequent cessation of warfare, no one could be found willing to undertake the office. Since the missionaries have controlled the island there have been three kings; they were elected by the chiefs of villages, who had been themselves elected by the people. They governed with the consent of a council of these chiefs which met in the open air once a month, and they carried out their decrees by the force of public opinion. There were no taxes beyond the obligation to provide feasts for these councils, and occasionally to carry food to the king, or to the chiefs of villages.

The following is a list of the kings as far back as their names are recorded:—

Punimata, of Halafualangi, reigned at Fatuaua. (Died.)

Ngalianga, of Pulaki. (Killed.)

Patuavalu, of Puato. (Died.)

Fokimata, of Pulaki. (Died.)

Pakieto, of Utavavau. (Starved to death.)

Interregnium of eighty years.

Tuitonga. (Succeeded 1876.)

Fataaiki. (Succeeded 1888.)

Tongia. (Succeeded 1898 after interregnium of two years.)

*Religion.*—There were no idols in Niue. The two great deities were, as in New Zealand and in Tonga, Tangaloa and Mau'i. There is no tradition of them as living men. Mau'i pushed up the island by successive efforts, first as high as a reef, awash at low tide, and then as high as Tonga, and then, by a final heave, to its present height. The Niue story of the peopling of the earth is almost identical with the Maori tradition. The earth lay locked in the embraces of her spouse, the heaven, and man, their progeny, lying between them, panted for air. Uniting their strength, men tore their parents apart, and the rain-drops are the tears shed by Heaven at being sundered from his bride.

Every tribe had its tutelary deity, who was probably a deified ancestor. The belief in an after-existence was shadowy. The virtuous passed into Ahonoa (Everlasting Light); evildoers into Po (Darkness). The virtues were kindness, chastity, theft from another tribe, and the slaughter of an enemy; the vices, theft from a member of one's own tribe, breaking an agreement or a tabu, cowardice, and homicide in time of peace.

That the dead reappear is believed even now after many years of mission teaching. When a man is dying his friends take food to him, and say "Be good; if you leave us, go altogether." When they buried the body they threw heavy stones upon the grave to keep the "Aitu" down, and wailed forty nights. Only three years ago a woman burned her daughter's grave, because she said that the spirit was afflicting her with sickness. They spread a piece of white Seapo (bark-cloth) beside the body, and the insect that first crawls upon it is carefully wrapped up, and buried with the body; it is the Mo'ui, the Soul.

The dead cannot be summoned to answer questions, but even now widows go to the graves of their dead husbands, and call upon them to help them when they are oppressed.

The office of priest, Taula'atua, was hereditary. Priests were inspired by a draught of kava (*piper methysticum*) which was not drunk at other times. The offerings made to the gods were the priests' perquisites. There were no temples; the gods visited their priests in sacred mounds or clearings. In late heathen times the gods did not take animal forms, but there is a trace of totemism in the tabu of certain animals to particular tribes. The moko lizard peculiar to the

island was sacred throughout Niué; the Lulu owl was tabu to the people of Alofi.

The priests, both male and female, had much political influence, and the "toa" found it to their advantage to be on good terms with them, although they themselves had the power of invoking the gods without the intermediary of a priest.

There was no festival for initiation, though a feast was always held when a boy assumed the *maro*, the girdle of males. Ceremonial purification was necessary for those who had touched a dead body, or infringed a tabu. These were forbidden for a period to lift food to their mouths; they were fed by others, and drank as animals do. Human sacrifice was unknown.

There is a very curious survival of circumcision, a rite which, the natives say, has never been actually practised since they can remember, though it is almost universal in Tonga, Samoa and Fiji. The child is laid on the ground under an awning of native cloth, and an old man makes the sign of circumcision round the foreskin with his forefinger. A child not so initiated is never regarded as a full-born member of the tribe. Tattooing was not practised in ancient times, but it is now being introduced by men who have been to Samoa or Tonga as labourers.

*Witchcraft*.—There is a prevailing belief that people can be hag-ridden. Not long ago a woman of Alofi was so affected. She rushed madly about the country, and seemed to be incapable of sleeping. When asked whose spirit had entered into her, she readily gave his name, and though her friends knew no way of exorcising the evil spirit, she eventually recovered. Exorcism by secret invocation is practised to neutralise curses. The ordinary form of witchcraft was to take the soil on which an enemy had set his footprint to a sacred place, and curse it in order that he might be afflicted with lameness. In preparing for war a piece of green kava was bound on either side of the spear to strike the enemy with blindness. Nowadays the commonest form of witchcraft is to put a live lizard in a bottle and bury it under a cocoanut tree; any person who drinks the water of the cocoanuts is destroyed. I asked King Tongia whether the priests had the power of making warriors invulnerable. He replied that they all claimed to have this power, but that, so far as his observation went, it was unwise to trust only to their skill: he had observed that the foolhardy got killed all the same.

*Diseases*.—Mr. W. H. Head, who has been more than 30 years on the island, stated that yaws (*Tona*) and phthisis were quite unknown before the arrival of the Samoan teachers. The natives, when he first arrived, generally seemed to die of old age. Coughs and colds were then unknown. The diseases of that time were Makulokuli (a difficulty in passing water), lupus and scrofula. Since the intercourse with ships, the policy which earned for the Niué people from Cook the name of "Savage Islanders," has been amply justified. In these days every child has yaws as a matter of course, though the disease might easily be stamped out by isolation. Whooping-cough has never left the island since its introduction. Measles, introduced in 1898 by a returning laboure<sup>1</sup>,

occasioned about 100 deaths, but, though it lasted twelve months, so efficient was the natives' quarantine of infected villages, that the village of Tuapa escaped it altogether. Syphilis, unknown 34 years ago, is said to be very prevalent in the tertiary form, especially among infants: as its native name, "Tona Tahiti," indicates it was brought from Tahiti. There is not much ophthalmia, which is strange, in view of the enormous number of flies that used to infest the island. It is a remarkable fact that the flies completely disappeared early in the present year 1900. Not one was seen during my visit. Deformities are rare. There are a few cases of insanity, and the people are disposed to treat them unkindly. Even in these days serious illness is always regarded as possession by an evil spirit.

*Medical Treatment.*—Nearly all the old women are medical practitioners, and the number of herbal decoctions that they administer to a sick person is incredible. The best known of these native doctors take heavy fees in kind, but their faith in their own nostrums must be slender, for they themselves have recourse to the dispensaries of the Mission and Mr. Head whenever they are ill. Mr. Head told me that he finds that the natives require smaller doses of drugs than Europeans.

Infanticide used to be common in the cases of illegitimate children, and children born in time of war. In the latter case the child was disposed of by Fakafolau, that is to say, it was put into an ornamented cradle, and, with many tears, set adrift upon the sea. Mothers are very affectionate to their children.

*Midwifery.*—A professional midwife attends at delivery, and the husband may, or may not, be present. The woman is delivered in a sitting posture. The midwife assists the labour by squeezing the abdomen: if the afterbirth is slow in coming away she becomes frightened, and tries to hasten it by treading on the abdomen. The umbilical cord was formerly severed with the teeth rather near the child: it is now cut long with scissors, and coiled down without tying. Feasts were held at various stages in the infant's growth.

Mal-presentations are very rare, and the women suffer but little in childbirth. Mr. Head has seen women walk four or five miles the day following their delivery. The child was usually suckled about twelve months, during which period there was strict sexual abstention between the parents. It was weaned upon taro, chewed by the mother, who now, unfortunately, is addicted to smoking the rankest tobacco in a pipe.

*Abortion* was formerly common, because if a couple did not come together with the consent of the girl's relations, they were punished. Drugs and trampling on the abdomen were the usual methods employed. Abortion seems to be less common now since the law against seduction is administered with caprice, and influence can generally be brought to screen those who offend against it. An illegitimate child has no disabilities, and its parents do not suffer in public estimation. The absence of so many of the men, and the consequent predominance of women, are sufficient to account for a large increase in illegitimacy.

The marriage of first cousins is not popular as in Fiji. The offspring of two

sisters are absolutely forbidden to marry, but the children of two brothers, or of a brother and sister, may do so without being held guilty of incest. In the old days a young man took a present to the parents of the girl, and, if it was accepted, a feast fulfilled all the formalities. If he took the girl without the leave of her parents, and could not command the influence of the "toas," he was clubbed. The abduction of married women into the bush has lately become common.

Native families are large. Families of five and six are frequently met with, and there is more than one woman on the island who has given birth to sixteen children. There used to be no barren women, but now, owing perhaps to sexual excesses at an early age, childless women are not uncommon. These generally adopt children, to whom they behave in all respects as if they had borne them.

*Funeral customs.*—Before a man is dead his shroud is unfolded, and the funeral feast prepared, all these preparations being made before his eyes. Food is presented to him as an inducement not to leave his wraith behind him, and his relations trouble his last moments with questions regarding the disposition of his property. His wishes on this subject are held to be as binding as a will. That curious power of self-abandonment, which enables a sick man to foretell the hour of his death, is as common here as it is in other parts of the Pacific. As soon as life is extinct, the body is oiled and wrapped in its shroud, and the mourners agree upon a time for wailing, which they do with every semblance of frantic grief. The feast is eaten, and on the following day the body is carried to a shallow grave, dug in the coral rock somewhere between the public road and the edge of the cliff. Before Christian times it was simply laid upon the floor of one of the burying caves. Stones are laid upon it to keep the "Aitu" down, and a neat grave of coloured pebbles, or a rounded vault of white concrete, lettered in relief, is built over it. The side of the road which skirts the western coast is full of such graves. The acquisitive character of the people is sometimes shown disagreeably in their determination that the most precious of their possessions should be buried with them, lest their relations should benefit by them. Quite lately, an old woman tried to extort a promise from Mr. Head that he would throw her favourite axe into her grave. On the other hand the relations tend the grave for a long time after death, laying garlands and valuables, such as sewing machines, upon it. The old custom of Fakalilifi, or cutting down the fruit trees of the deceased with the idea of doing him honour in preventing lesser men from using what has been his, is dying out, but most of the personal chattels are still destroyed.

*Warfare.*—The Savage Islanders were not so impetuous as the Tongans and Samoans. They avoided frontal attacks, and trusted rather to terrifying the enemy by a series of feints. Some of these manœuvres were shown to us at an entertainment given in our honour. The warriors, brandishing either a spear, or a two-handed paddle-club, drew their tangled hair over their eyes, and chewed their beards with the most horrible grimaces. They advanced upon one another with a remarkable pantomime of battle-fury, always on the ace of striking, but always retiring before the fatal blow was struck. The king, Tongia, in relating

the prowess of his forefather, “the greatest warrior in the world,” showed Mr. Lawes the spot where he had met his match in the “second greatest warrior.” Mr. Lawes, seeing that the space was confined, asked which of them was killed. “Oh, neither of them,” the king replied. This historic duel was probably a fair example of Savage Island warfare. Cannibalism was never practised.

*Land.*—The land belongs to clans represented by their heads. In fighting times the braves (*toa*) ignored all rights and seized upon any land that they were strong enough to hold. At present there is land enough for all, and the junior members of the clan come to the headman whenever they want land to plant upon. Titles can be acquired by cultivation. The planting of yams or plantains by permission confers no title, but the planting of cocoanuts does so. Thus, there being no boundary marks, encroachment by planting these trees is a continual cause of friction. It presses particularly hard upon widows and orphans, who are frequently robbed of the land inherited from their dead husbands and fathers. The excuse given for this injustice is that the child belongs to its mother’s clan, and that the mother and child should seek land from its mother’s kin, but the majority of natives condemn the practice. The Pacific Islands Company have recently applied for a lease of 200 acres, and though the land for which they have applied is not in occupation, they have failed because there is no one whose individual interest is sufficient to warrant him in granting a lease. The headman receives a sort of rent in the form of service and produce, and the first-fruits, formerly offered to the gods, are sometimes presented to him.

Relationships are traced back four or five generations. The people seem to be in a transition state between patriarchy and matriarchy. A grown son succeeds to his father’s house and land, but daughters appear to have greater claims upon their maternal uncle. Though these claims are universally recognised, there is nothing approaching the rights of the Fijian Vasu. The testamentary power of a dying man related to his house, his land, and such of his personal effects as ought not rightfully to be destroyed out of respect to his memory.

*Justice.*—In ancient times the only tribunal was the Pulangi tau, or Council of War. There was no principle of procedure, and the accused was never present. The code was the *Lex talionis*, except when the personal influence of the accused screened him from the consequences of his crime. Murder—that is, the killing of a member of the tribe, for the slaying of an enemy was a virtue rather than a crime—was punished by death. The sentence was carried out by the Kopenga: a man was told off to *afo* (betray) the doomed person by making friends with him, and then enticing him into the bush on the pretence of taking him to an assignation: there warriors lay in wait and fell upon him unawares. Adultery was punished by fine or by the club according to the importance of the offender, and there were instances of persons being condemned to be the slaves of their accusers. The gratification of private revenge was recognised, and justice was administered capriciously as must always be the case in a society that tolerates might as right. From the whalers that visited the island the natives first heard of the stocks as a

punishment, and in a deep cave near Tuapa, from which all light is excluded, some of these instruments may still be seen.

At present there is a judge in each village. A message is sent to the accused ordering him to appear, and if he refuses the court adjourns until such time as the importunities of his neighbours worry him into surrendering to the charge, for there are no paid police. The main object of the trial is to induce the accused to confess. Sometimes he is allowed to swear his innocence on the Bible, for perjury, so committed, weighs heavily on the conscience, and produces illness and consequent confession. When there is no clue to the perpetrator of a crime it is not unusual to curse him on the Bible, and confessions due to fear of the consequences of such a curse are common. The ordinary punishments are labour on the roads, making limekilns (calculated at two weeks' labour each), and fines; but the difficulty of enforcing the two first have led to a preference for fines for all offences, and, as the fines are usually paid by the relations, crime may be said to go unpunished. The commonest offences at the present time are adultery and encroachment on land, the adultery being generally abduction into the bush. For theft and housebreaking restitution is ordered in addition to any other punishment, and it is owing to this wise rule that there are so few complaints against the native government on the part of Europeans. Justice is powerless to deal with great crimes. In 1887 a man named Koteka murdered his brother. He was condemned to perpetual labour on the roads, but, shortly after, a ship coming in, he boarded her without opposition and escaped to Manahiki to the great relief of the native authorities. There is a primitive but very efficacious way of dealing with sedition: the monthly council sends a message to the suspected village that they intend to meet there, and that they expect a lavish entertainment, knowing that, in order to escape this tax, the majority of the villagers will be in favour of law and order, and will enforce it.

The emigration of the young men as labourers is a purely modern development, and it is difficult to explain. Their early experience of recruiters could not have been favourable. In 1867 the notorious pirate, Bully Hayes, called at the island, and, choosing a moment when his vessel was crowded with natives, he made sail. Having landed his 80 unwilling passengers on an uninhabited island, he returned to Niué with the excuse that they had refused to leave his vessel, and, his native crew having enticed some 70 girls on board during the night, he set his course for Tahiti, picking up the 80 men on the way. At Tahiti he sold his passengers as labourers on the plantations, and very few of them ever returned to their homes.

In their industry and energy the Savage Islands are a great contrast to the other Polynesian races. Whether at home or abroad, they do a full day's labour. In Niué men carry loads of copra of 150 lbs. weight nine miles to sell to a store-keeper. They are now attempting to cut through a limestone bluff to grade the road for wheel-traffic. This work, which could easily have been accomplished by blasting, they were laboriously doing by lighting fires on the rock to convert it into lime, and chipping it off with hammers. They earn 4s. a day from the traders

for shipping copra, and lately they have shown a disposition to strike for 8*s.*, which is the smallest advance they seem capable of understanding. The ordinary wages on plantations abroad are £2 a month, but on the steamers they make as much as £3 10*s.* Within a few days of his return a labourer has parted with all his acquired property to his friends, and is as poor as when he left home, and in a few weeks he is ready to re-engage with the first recruiting vessel that calls at the island.

While their industry shows no symptom of abatement, there is a marked deterioration in their morality. Mr. Lawes thinks that the absence of so many of the young men leads to the corruption of young boys by the women whose husbands are away, or who can find no husbands. Seduction, which was severely punished in heathen times, is no longer resented, but, strangely enough, married men are very jealous of their wives, and never leave them out of their sight, except when they are absent on night-fishing, and then they confide them to the guardianship of their sisters, who are pledged to sleep by their sides. The outward demeanour of the women, however, is modest.

*Dress.*—The former dress was, for males the Maro, or perineal bandage assumed at puberty, and for females a petticoat of fibre. The men now wear European clothes, and the women the flowing *saque* worn by the women of Samoa and Tahiti. Both sexes wear hats plaited on the island. Whatever has been gained in decency has been lost in picturesqueness.

The villages are the cleanest and neatest in the Pacific. Every native householder has a hut on his plantation, and a neatly built concrete house in the village. The roof is thatched, the walls whitewashed, the windows closed with a sort of rough venetian of wood smoothed with the adze, and pivoted on the centre of each slat so as to exclude the sun while admitting the air. These houses are sometimes floored with rough planks cut from the log with the adze. But the older natives seem to keep these houses for show, using in preference little native-built hovels behind, which they burn down when too ruinous for occupation.

There is a marked decline in the influence of the mission, which formerly held absolute sway, and a consequent recrudescence of heathen superstition. Mr. Bell, who was seven years on the island, says that incantations are now constantly sung over the sick by professional wizards. The mission still yields some authority, through its power of expelling offenders from the church membership, which entails some social ostracism, but Mr. Lawes thinks that his personal influence is declining, especially with those who have been abroad, and have associated with the lower sort of European. With all their faults, however, it is impossible not to like a people who, if they do not respect their own chiefs, pay heed to the opinion of white men; who, with the keenest trading instinct, are honest in their dealings, and exact honesty from others; who, while so excitable that a mere domestic quarrel will drive them to suicide, are energetic, friendly and good-tempered; and who promise, under English control, to be the most contented and prosperous little community in the Pacific.



STORIES FROM THE SOUTHERN NEW HEBRIDES, WITH  
INTRODUCTION AND NOTES.

BY SIDNEY H. RAY.

THESE stories, with the exception of the last, were sent to me some years ago by the Presbyterian missionaries in the Southern New Hebrides, the Rev. W. Gray and Rev. Dr. Gunn. They come from a most interesting region of Melanesia, from the islands of Tanna, Aniwa, and Futuna, where the Polynesian and Melanesian people have met and mingled to such an extent that, except in language, they are indistinguishable from each other. The people of the three islands belong to the darkest and most frizzly-haired section of the Melanesian race, but whilst the language of Tanna, differing in some respects from the languages of the northern and central parts of the Melanesian Archipelago, is still to be classed with them as essentially a Melanesian language, the languages of Aniwa and Futuna are in vocabulary and grammar closely related to the tongues of Eastern Polynesia.

The names of the islands of Aniwa and Futuna are decidedly Polynesian, the former meaning "a place abounding in coconuts," and the latter recalling the name of an island of the Tonga group (Horn Island) also called Futuna. The relations of the New Hebrides Futuna and that of Horn Island need not be discussed here, but it may suffice to state that there is no decided evidence of any migration from the eastern island to the western.

The first four stories originated through inquiries being made of the natives as to whether they knew anything about Tangaloa and Mauitikitiki, who are by far the most prominent persons in the folk-tales and myths of Eastern Polynesia. Inquiries were also made regarding various other persons, places, and objects referred to in the Eastern legends. These may form the subject of another communication. In Futuna and Aniwa, Mauitikitiki is called Moshikishiki; in other islands of the New Hebrides (Aneityum, Efate, and Nguna) he is called by his Polynesian name Mauitikitiki. In Tanna the name becomes Motikitiki or Matikitiki. Summaries of the actions of Mauitikitiki in various islands of the east are given by Tregear,<sup>1</sup> but none of them correspond to the Futuna and Tanna exploits related here. The Futuna people also credit Moshikishiki with forbidding the introduction of sorcery into the island. A partially sunken rock at some distance from the shore is pointed out as the canoe which was bringing it.

<sup>1</sup> *Maori-Polynesian Comparative Dictionary.* Wellington, 1891; article "Mau."

1.—MOSHIKISHIKI and TAPOSIESI. *Futuna.* Rev. Dr. Gunn.

Taposiesi<sup>1</sup> was a devourer of men, who devoured all the big people, and kept the children in the *marae*<sup>2</sup> in Pau<sup>3</sup> until they were big, and then he ate them. One day he went up Kirisavini<sup>4</sup> and met Moshikishiki, who had made himself young like a boy, and had been sharpening a stone axe. Taposiesi asked him, "Whence came you?" "I was playing," he answered. "Come down to your brothers in the *marae*." They both went down, and heard the noise of the boys playing inside. Moshikishiki was put inside too. Taposiesi went away to his plantation. When he was away Moshikishiki asked the children what they were doing. "Playing, just waiting until our grandfather returns." "He is just deceiving you," said Moshikishiki; "he is feeding you up until you are big, and then he will eat you." He then took them away down to Tavesua.<sup>5</sup> Taposiesi, hearing no sound from the house in the *marae*, came down and found no one inside. "What has become of my grandchildren?" he said. He went down to the cliff, and saw them on the beach below. "What are you doing down there, my grandchildren?" and he went down after them, hoping to enclose them inside the rocks. But Moshikishiki cut the rocks at Masuataga,<sup>6</sup> and he and the boys went out towards the sea. Taposiesi followed. They went on with Moshikishiki at Taringakasi, and went on to Sia, and climbed up Feiava, and went on towards Mounga.<sup>7</sup> They climbed *tamakopu*.<sup>8</sup> The boys became the seeds and Moshikishiki the core of the breadfruit. Taposiesi said, "This is my breadfruit," and went to get firewood to cook it. When he was making the fire the boys watered it (urinated) and put it out. He went away to get more food. When he was away they left the *tamakopu* and climbed by means of the *taric*<sup>9</sup> up into the sky. When Taposiesi returned he found no one in the breadfruit tree, but saw them in the sky. "How did you get up there, my grandchildren? Give me the vine (or creeper) that I may climb up." They threw it down to him and pulled him up some distance and then let go. "How did you let me fall?" asked Taposiesi. "You did not take a good hold." He tried again, and fell, and laid down. One of the boys came down like a fly (*tarango*)<sup>10</sup> and examined him. He went up and said, "He is dead." Another came down like a large black ant (*taroata*)<sup>11</sup> and examined him. He passed through him, entering at the mouth. "He is dead," he said. The other boys came down. "Where do you stay?" asked Moshikishiki of one. "I am a man of Mounga." "You will stay in Mounga." "What is your land?" he asked of another. "Sia." "Then you will stay in Sia." "What is your land?" "I am a man of Asoa." "You will go to Asoa." "What is your land?" "Akana." "Go." "What is your land?" "Matangi." "Go." "What is your land?" "Raro." "Go." "What is your land?" "Pau." "Then we two will go." And thus Moshikishiki took up his stay in Pau.<sup>12</sup>

2.—MATIKTÎKÎ and TËRAMSÄMÜS. *Tanna. Rev. W. Gray.*

Tëramsämüs,<sup>1</sup> having eaten all the inhabitants, goes and looks for black people, eats them, then looks for white people (this does not mean Europeans), and takes them and throws them into a hole of a rock and shuts them up, and says to them, that they are to wait for him till he goes and makes *nikasi* *neri*<sup>2</sup> for their food. They remain in the cave and sing and dance.

Matiktikî goes past and knows that he hears dancing. He says, "Ho! who are you?" They dance, but say, "We here." But he says, "Who are you?" But they say, "We here, our ancestor goes to make *nikasi* *neri* for our food." But he says, "They say he goes to make *nikasi* *neri* for your food, whereas he kills you and goes to make *niparara*<sup>3</sup> with you." But one says, "Alas! my father-in-law!" But another says, "Alas! my father!" Matiktikî stands and holds a *fufau*<sup>4</sup> and breaks in pieces the rock. They come out, and going up, run until they come to a place and see a row of fish shorewards. They eat and leave none of Tëramsämüs' food.

Tëramsämüs runs and runs and cleans *nikasi* *neri* and goes back to the hole of the rock and sees they are gone. But he says (with bad language), "I have spoilt all my food!" He runs and runs, holding his head down westward and feels it cold; he runs eastward till he feels it hot; he runs and eats his fish.

Matiktikî and the children (the fellows out of the cave) run and feel they are tired (?), and look up and see a *makopo*<sup>5</sup> hanging. They go up and pull out its core. The children go in and fill up the space (a hole about six inches long and one inch and a half in diameter). Matiktikî sits on the edge of the core hole and puts in again the core.

Tëramsämüs runs and runs, and feels hunger biting him greatly, and looks up at that *makopo* and sees it hanging. He says, "Let me pluck the *makopo* and cook and eat it, and be satisfied, and search for my food" (*i.e.*, for those who had escaped from the cave). He goes and takes wood, and heaps it together and climbs and plucks the *makopo* and comes down and lays it on the fire and cooks it. The youngsters feel the steam which is killing them. Matiktikî tells them to put out the fire (as in previous story), and the fire goes out. Tëramsämüs takes away the breadfruit and lays it down and goes and looks again for wood. They pull out the core and come out and put the core in again and run and run, and look up at a she-oak tree, and see it standing inland.<sup>6</sup> They run inland. Matiktikî says, "Hasten for the she-oak." They hasten and hasten, and come just there below. Climbing up, they all go to the top. Matiktikî has already seated himself in the fork of the tree.

Tëramsämüs looks for them, and was going hither and thither, and goes up and looks down into a pool of water. Matiktikî tosses frequently his crest of feathers. Tëramsämüs (seeing Matiktikî reflected in the pool) springs down and splashes in the water-hole and comes up and was standing. Matiktikî says,

"Youngsters! laugh." The youngsters laugh, and say "Ho! what are you doing there after having run hither and thither?" He says, "Alas! my children. How do they manage to go there?" They say, "We went on the palms of our hands." He goes there on his hands and splits them, and says, "Alas! I have split and spoiled my hands. How do you always do it?" They say, "We went on the soles of our feet." (The same thing befalls his feet, his head, and his knees.) Matiktiki says, "We went on this thing," and lets down a small rope, to which Tēramsāmūs hangs on, and goes up, and cannot make the fork of the tree, and says, "Alas! my food! You do tease me." Matiktiki takes a *fufau* and cuts in two the small rope, and he falls down and strikes on the ground.

They send forth a black dove. It goes and shouts into his ear, and finds that he lies and is silent. They send a bronze-wing dove, and it wails and finds that he lies and is silent. They send a *mīahī*.<sup>7</sup> It bites him and sees that he lies and is silent. They send a *kauyameta*.<sup>8</sup> It goes and stoops and passes right through the body. They see blood stains upon it. (Hence its red breast.) They exclaim, "He is dead verily." They come down and go and behold. Matiktiki takes a bamboo fishing-rod (from which he makes a knife) that he may lance the body. One by one they rise till every one who had been eaten came to life.

### 3. TANGAROA, THE ORIGIN OF COCONUTS. *Aniwa. Rev. Dr. Gunn.*

Tangaroa<sup>1</sup> lived in Tavakosura in Aniwa. There was a woman, named Keke, in the district of Ravaru. Tangaroa was one day following the course of the vine of a *keire*,<sup>2</sup> and Keke met him. He took her for his wife, and they had a son, and they lived in Tavakosura. Tangaroa now and again left Aniwa and went over to Rupapu<sup>3</sup> and to Nahabusima<sup>4</sup> and to Namera<sup>5</sup> and to other parts of Tanna. When he went away, he left part of him behind as he was big and long like a house.<sup>6</sup> Once he went away altogether, and then the woman took her child and returned to Ravaru. When Tangaroa returned to Tavakosura, he found that his wife and child were gone. "Where are they two gone to?" and he blew a Pan's pipe. "What is that?" asked his wife of those round about. "Oh! it is only the wind blowing through the *toa'* leaves." The whistling continued, and she began to clean up the premises, and swept it all round. Then he came in gradually and filled up the whole space. She got some *kara*,<sup>8</sup> and some other roots, and chewed them for him to drink. He said, "If, when I drink it, I live, then we three shall stay together; if not, you will cut off my head, and bury me." He drank the *kava* and died at once. She cut off the head and buried the body, and then planted the head in a heap of rubbish in the premises. It grew and became a *nabua*.<sup>9</sup> A fence was made round it. It grew larger and became a *niu*,<sup>10</sup> and a larger fence was put round it. Keke gave her son the coconuts that grew on it, but gave none to others.

Others ate the fruit of the *fatau*,<sup>11</sup> and the *pau*.<sup>12</sup> His mother told him not to give any of his food to others. One day he was out with other children, and he

saw them eating puddings of these fruits. He asked them to give him one, but they refused. He said, "I have a very good pudding myself." "Let us see it?" they asked. He returned to his premises, brought the coconut made into a pudding, and gave it to them. Each one took a bite of it, and they ate, and ate, until they ate off his hand. He went back to his premises crying. When his mother saw that his hand was bitten off, she was angry and pulled off the leaves of the coconut tree. She threw away *tanojiro*,<sup>13</sup> and they fell in Samoa, Rarotonga, Niue (Savage Island), and thus these islands have large good coconuts, while the bad ones have been left for Aniwa.<sup>14</sup>

#### 4. TANGALUA and SEIMATA. *Tanna.* Rev. W. Gray.

Tangalua<sup>1</sup> had an Aniwan woman, Seimata, as his wife. She had a little boy. The Aniwans hated Tangalua, because, as they said, he was not a man but only a ghost.<sup>2</sup> So they killed him with a big dose of *kava*. Before he died he told Seimata to watch the place where he was buried, for something would grow there that would be food for her and her child. As Tangalua lay drunk with *kava* he wagged his tail<sup>2</sup> again and again, and died and was buried. Out of his two eyes grew a coconut tree.<sup>3</sup> But only Seimata and her child knew that its nuts were good to eat. One day Seimata left her little boy alone, eating a nut, and told him not to tell anyone where he got it. Some boys got him to show them the tree. They pulled nuts and ate them. One boy in his greed ate the points of his fingers. Seimata was very angry, and pulled up the tree and tore it to fragments. The wind scattered these among all the islands, so they all have coconuts now.

#### 5. The ORIGIN of DEATH. *Tanna.* Rev. W. Gray.

Munganeiveiva, having become an old woman, goes and takes her grandchild in her arms, and walks with the aid of a stick and goes down sewards in order that she shall bathe. She sets down her grandchild in a cavity of a white coral rock, and sheds her skin and bathes. Then she takes a different skin and becomes a young woman and puts on a *kwanmari*,<sup>1</sup> and goes in order that she may take her grandchild in her arms. She says, "My grandchild! let me take thee up in my arms." But her grandchild says, "Thou art a different person; my grandmother is not here." But her grandmother says, "I speak good, but thou sayest evil." She goes and takes again the old-woman-skin, and goes toward her, and takes her up in her arms.

It happens like this that we always die, and always die indeed. If she had not hindered her grandmother from taking her in her arms, we would have remained (*i.e.*, lived) and always have been casting our skin and would not indeed have died.<sup>2</sup>

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1. This story is told with very slight variations by the people of Aniwa. They give more details of the attempts of Taposiesi to reach the sky.

<sup>1</sup> Taposiesi. I have been unable to trace this person in the eastern legends. <sup>2</sup> The *marae* is the open space in the centre of a Polynesian village. <sup>3</sup> Pau is a place in Futuna. <sup>4</sup> Kirisavini is a path leading to the great hill which forms the centre of Futuna. <sup>5</sup> Tavesua is the landing-place near the mission station. <sup>6</sup> Masuataga is near the landing-place. <sup>7</sup> Taringakasi and Feiava are near the mission station and landing-place; Mounga is the central hill of Futuna. <sup>8</sup> In these and similar words *ta* is the definite article. *Makopo* is the breadfruit tree; Samoan, *maopo*. <sup>9</sup> *Tarie*, the almond tree. <sup>10</sup> *Turango*, the common house-fly; Samoan, etc., *lango*. <sup>11</sup> *Taroata*, Samoan *loata*, a large venomous ant. <sup>12</sup> Mounga, Sia, Asoa, Akana, Matangi, Raro, and Pau are the seven districts into which the island of Futuna is divided. Sometimes the locative particle *i* is prefixed—Imounga, Imatangi, at Mounga, at Matangi.

2. In Tanna a story of this kind is called *Kwanangei*.

<sup>1</sup> Tēramsāmūs is not traced elsewhere in Polynesian or Melanesian myth. <sup>2</sup> *Nikasi* is unexplained; *neri* is the Taro esculentum. <sup>3</sup> *Niparara* is animal food eaten with taro or yam as a seasoning. Those in the cave understood that Tēramsāmūs had gone to get taro for their food, but his intention was to get taro to cook with them. <sup>4</sup> The *fufau* is an axe of white stone used for cutting out canoes. <sup>5</sup> *Makopo*, a variety of breadfruit tree. Cf. previous story. <sup>6</sup> The she-oak or iron-wood tree (*Casuarina*), *nil* in Tanna, is called *toa* in Futuna and the Polynesian islands. This story may be compared with that of Qat (Codrington's *Melanesians*, p. 165). Qat and his brothers escape from the cannibal Qasavara by climbing an *aru* (*Casuarina*). Qasavara is dashed to pieces against the sky. <sup>7</sup> The *mīahī* is an ant with a very painful bite, the *roata* of the previous story. <sup>8</sup> The *kauyamcta* is a small black bird with a bright scarlet breast. *Kauya* is a prefix to other bird names, e.g., *kauyamīt*, an owl. The *Kauyametamin* are the people of the north and west of Tanna, who decorate their bodies with red paint; the *Numrikwenimin*, people of the opposite side of the island, do not so paint themselves. *Meta* is the adjective "bloody," from *nita*, blood; *min* is the sign of the plural.

3. <sup>1</sup> Tangaroa is also called Teirauma or Lakeirea. <sup>2</sup> *Keire* is a tuberous plant with a trailing stem, similar to the yam. <sup>3</sup> Rupapu, Port Resolution, Tanna. <sup>4</sup> Nahabusima, Weasisi, Tanna. <sup>5</sup> Namera, Kwamera, Tanna. <sup>6</sup> Tangaroa was a gigantic eel or sea snake. <sup>7</sup> *Toa*, iron-wood (*Casuarina*). <sup>8</sup> *Kava*, *Piper methysticum*. <sup>9</sup> *Nabua*, the sago palm. <sup>10</sup> *Niu*, the coconut palm. <sup>11</sup> *Fatuu* is described as a tree like the *tomano* tree. What the latter is I do not know. <sup>12</sup> The *pau* is a tree with a pear-like fruit, containing a hard inedible seed. <sup>13</sup> *Tanojiro*, the central leaves of the coco-palm; *taw*, its, belonging to it, *jiro*, innermost sprout; Samoan, *tilo*. <sup>14</sup> In Rarotonga, coconuts are said to have sprung from the head of Tuna. He assumed the shape of an eel, and his head was cut off by his lover, Ina moe

aitu. Twin coco-palms sprang from the two halves of his brain; one red, sacred to Tangaroa, the other green, sacred to Rongo. The white kernel of a coconut, which was not to be eaten by a woman, was *te roro o Tuna*, Tuna's brain. (Gill, *Myths and Songs*, p. 77.) The conception of Tangaroa as a snake or eel does not seem to occur in Eastern Polynesia.

4. <sup>1</sup> Tangalua is the Tanna form of the word Tangaroa. <sup>2</sup> Because of his eel or snake-like form. <sup>3</sup> Cf. the Aniwa and Rarotongan versions.

5. <sup>1</sup> *Kwanmari*, a young woman's apron. <sup>2</sup> This story may be compared with a similar one in Codrington's *Melanésiens*, from Omba, Lepers Island, north of Tanna.



NOTE ON SOME AMERICAN PARALLELS TO EUROPEAN  
AGRICULTURAL CUSTOMS.

BY N. W. THOMAS, M.A.

IN his works on the agricultural customs of the European peasants, Mannhardt only appeals occasionally, and more or less by accident, as it were, to savage parallels. His investigations seldom led him to books which dealt with countries outside Europe, and he was thus debarred from citing testimony, which would not only have told in favour of his views, but also afforded a striking proof that coincidences in custom are not necessarily due to transmission.

There are, no doubt, at the present day many cases of European agricultural ceremonies having been taken over by the Indian tribes. This solution will, however, hardly hold good in the case of the following parallels to the customs of Europe. It was the custom at the end of February to take as large a deer hide as could be procured, and, leaving the horns on it, to fill it with all manner of herbs, and sew it together. The best fruits were fastened to the horns, and other parts fastened to a ring or piece of stuff. They then proceeded to an open space, and fastened the skin to a high tree, turning the head towards the east. Thereupon they offered a prayer to the sun, asking it to give them in the future these same fruits. The king and the magician stood nearest the tree and officiated, and the remainder of the people stood further off. The hide was left up until the following year.<sup>1</sup> The account seems to refer to Florida.

A custom exists or existed until recently in the west of America which may perhaps be regarded as analogous. The Papago performed a rain dance in July, at which a deer's head was fixed on a pole and its flesh underneath; the dancers were unmarried boys and girls who always faced the moon, and bathed when it set.<sup>2</sup> There is, it is true, no explicit assertion of any connection with agriculture, but it may be inferred. A rain dance performed at a fixed season can hardly have been anything else than a rite to promote the growth of vegetation.

The Pawnees in their religious ceremonies dance, sing, and pray before a bird stuffed with all kinds of roots and herbs; they have a fabulous tradition that the morning star sent this bird to their ancestors as its representative.<sup>3</sup>

<sup>1</sup> De Bry, *Die Neue Welt*, Pl. XXXV, Frankfurt : 1591 : fol., quoting some early traveller whom I have not yet identified.

<sup>2</sup> Am. Anthr., O.S. vii, 295.

<sup>3</sup> De Smet, *Missions of Oregon*, p. 357.

According to an account taken by Mannhardt from Prätorius,<sup>1</sup> the Prussian Slavs used to kill a goat when they sowed their winter corn, and consumed its flesh with many superstitious ceremonies. They then hung its skin upon a high pole near an oak, and it remained there until harvest. Then a bunch of all sorts of corn and herbs was fastened over it, and after prayer had been offered by a peasant who officiated as priest, the younger portion of the assembly joined hands and danced round the pole. The corn and herbs were then divided among them.

A somewhat similar custom seems to have prevailed among the Wogules. When a reindeer was sacrificed and eaten, the skin with the horns was left as an offering, and sometimes filled with rice.<sup>2</sup>

The parallelism between the American and European customs is therefore very complete. This does not of course imply that the explanation of the facts is the same. But we may infer that this is the case. The corn-spirit which we know in Europe reappears almost unchanged in America. The Mandan belief on the subject of the animal corn-spirit was very explicit. They said that the "old woman who never dies" sent geese in the spring, and the geese represented her; if eleven wild geese were found, it was expected corn would be plentiful; both corn and the birds were called the "Old Woman." Besides geese the stag seems to have been regarded as a form of the corn-spirit. A great stag or a white-tailed stag was said to keep patches of corn for the "Old Woman."<sup>3</sup>

Among the Mandans, as with the Pawnees, the corn-spirit was thus mainly identified with birds of various sorts. Among other tribes the corn-spirit seems to have been regarded as incorporate in deer, as in the Florida example. In New England there was a harvest festival, at which new corn and buck's flesh were eaten.<sup>4</sup> The Cherokees celebrated a similar festival.<sup>5</sup> The Delawares had a feast of first-fruits; before any corn was eaten twelve of their old men met, and a deer and new corn were provided; the venison was divided into twelve parts, and the corn made into cakes. The twelve men held the venison and corn towards the east, and then consumed them; after this the people were at liberty to eat corn and other fruits freely.<sup>6</sup>

These facts seem to show that there was a parallelism between European and Indian belief as well as custom. They also have a bearing upon a recent theory. It has been argued that the feast of first-fruits was merely intended as a sign that the taboo was removed, and that it was not sacramental. If this is so, it is singular that an animal, which seems to be the representative of this corn-spirit, was also eaten.

<sup>1</sup> *Deliciae Prussicae*, p. 23ff. (ed. Pierson).

<sup>2</sup> *Bidrag till kändedom af Finlands Natur och Folk*, 1891, p. xlvi.

<sup>3</sup> Maximilian, Prinz zu Wied, *Travels in the Interior of N. America*, p. 378ff.

<sup>4</sup> Rupp, *History of Berks*, p. 23.

<sup>5</sup> *Missionary Herald*, xiv, p. 415.

<sup>6</sup> Beatty, *Journal of a two-months' Tour*, p. 84.

## THE SPIRIT OF VEGETATION.

BY E. TREGEAR. COMMUNICATED BY J. G. FRAZER.

[READ AT MEETING, JUNE 25TH.]

At the time the Maoris of New Zealand were first visited by European voyagers they had no knowledge of cereal crops. Food was abundant, but it consisted almost wholly of cultivated roots such as *Kumara* (sweet potato), *taro* (the edible arum), gourds, etc., largely supplemented by wild plants such as fern-root and by the natural produce of sea and river, forest and plain, birds, fish, etc. The crop on which they most depended was the *Kumara*, a plant not to be confounded with the yam, for the former is a variety of convolvulus. It needed immense care in its cultivation, almost religious care, for every step in its planting and development was attended with elaborate ceremonial. The fields in which it grew were a beautiful sight, now, alas ! seldom seen, for it has been almost superseded by "the soul-destroying potato." *Kumara* were planted with great regularity, the tiny hillocks being arranged in lines almost mathematically true from whatever position they were viewed. The fields were manured every season with fresh gravel from the river-beds, the plants were picked over carefully for the destruction of insect pests, and not the tiniest weed was allowed to break the spotless surface of the soil. The *Kumara* was itself a god, not to be cooked with common food, nor handled except with restriction and deference. The houses in which it was stored were *tapu* or sacred (tabooed), and perhaps no food in the world was regarded with such reverence unless it may be some holy plant grown for priestly use alone or for temple-worship.

What were the particulars of the ceremonial by which the culture of the *Kumara* was approached ? They differed slightly as to locality, but those practised with antique strictness in one of the most famous places of the plant's growth, viz., Mokoia Island in Lake Rotorua, were as follows :—

The priests went forth to the forest to cut and collect boughs of the sacred *mapou* tree. On that day the people fasted, for that day and the day following were very sacred. The waters of the lake were *tapu* (prohibited), the fish were not to be caught, nor might a canoe put forth on the lake. The priests carried the *mapou* boughs to the altar of the god named "The Father of the South" and recited the incantations reserved for that occasion, laying the boughs upon the stone image until the sacredness had been imbibed by them. In the evening of that day the priests went into the fields, made ready for the *Kumara* to be planted,

and stuck the branches into the ground, repeating another incantation and entreating the gods to send a fertile crop. In the morning of the next day they went again and recited charms while the seed-tubers of *Kumara* were being planted in the little hills which had been measured and set off by sacred cords. If the cultivation was that of a chief, the skull of that chief's father or ancestor was disinterred (*i.e.*, brought from the burial-cave), and placed beside the *mapou* boughs to ensure a good crop. The Arawa tribe, however, at the particular place in question (Mokoia Island) used for this purpose the time-honoured skull and bones of their giant ancestor Tuhourangi, but in many other places the skulls of vanquished enemies were set up round the sides of the fields to promote a large supply of roots.

Everyone connected with the planting or harvesting of *Kumara* was very sacred. All the men, chief and followers, who worked at the planting did so absolutely naked. They kept perfect time as they toiled, giving loud cries at intervals, a shout when the ground was first broken by digging, another when taking the young shoots from the tubers, another when the tubers were set in the little mounds. The *Kumara* sets were addressed as if they were animate objects; they were reminded how they ought to behave to grow well, how the best effects were to be obtained from sun, wind, and rain, how the little roots were to hold on, nor were reminders of the heavenly origin of the plant forgotten.

The favourite hymn was an address to the hero-god *Maui*, beseeching his favour, and by some tribes three stakes or pillars were set up in the cultivation. Each pillar represented a god, these being *Kahukura* (the Rainbow), *Maui*, and *Marihaka*. Offerings were made to them, and then the priests went to consult the image of *Kahukura* that stood in the temple of the tribe. *Kahukura* was particularly a god to be propitiated, for it is said that it was through him that the ancestors of the Maori first acquired the holy root. If the deity was prepared to send a good crop his image would shake or tremble, and this was accepted as a sign that the *Kumara* fields would be protected by the heavenly powers from human or natural foes. The most learned priest to be procured was obtained, often with immense difficulty, for the slightest mistake or omission made in the ceremonial provoked the anger of the gods and the priest would die.

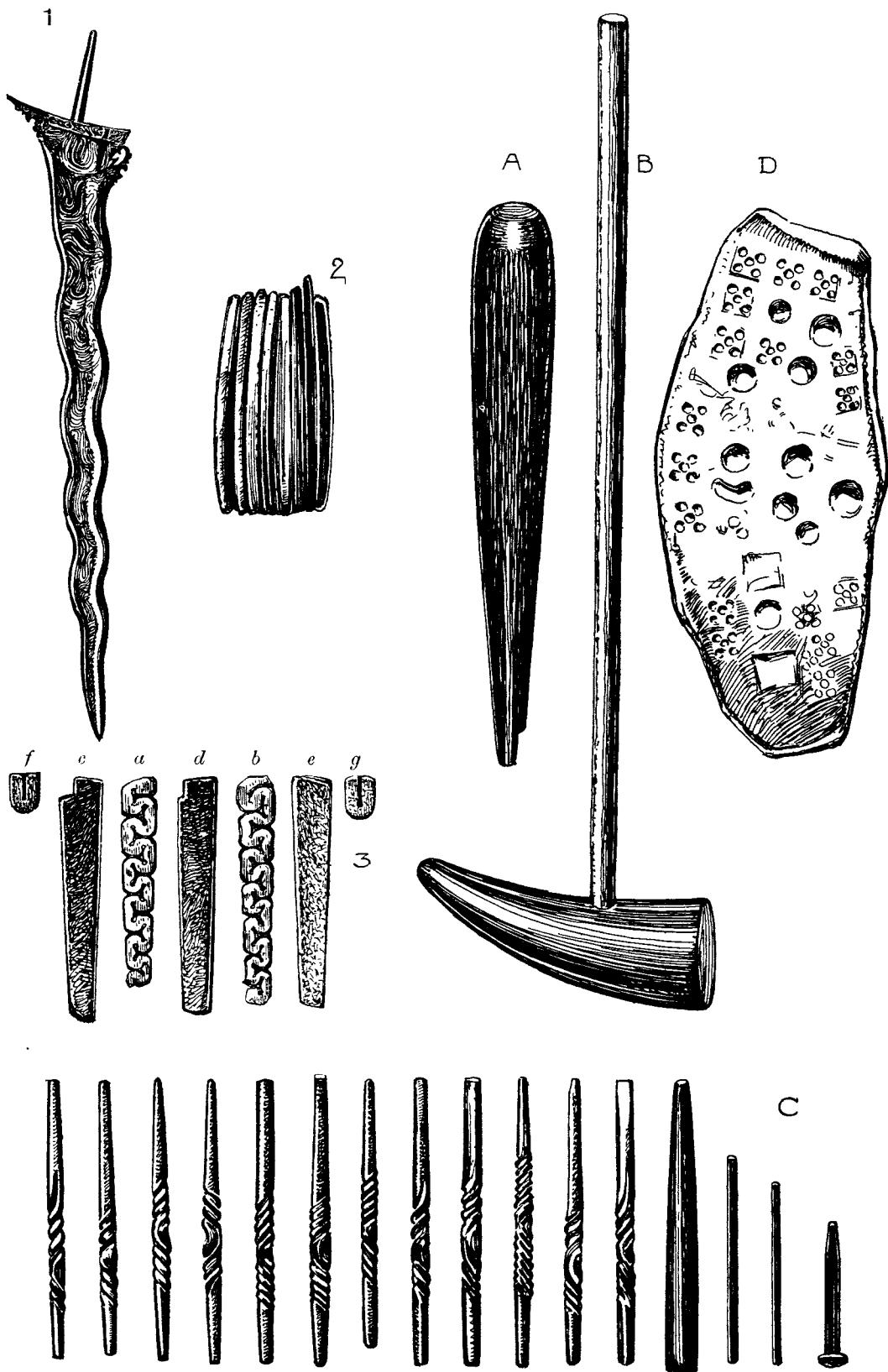
The above-written description is that of the procedure which took place at the beginning of this century, but if we learn from tradition we shall find that the ceremony of bringing out skulls and skeletons to promote fecundity of crops had a darker origin. Legend says that the *Kumara* was brought to New Zealand from Hawaiki, by two men named Taukata and Hoake. Hoake returned to his own country as a guide to the canoes which started to get more of the roots, but Taukata was sacrificed and his blood sprinkled upon the door-posts of the store-house in which the first crop of *Kumara* was placed, lest the spirit or essence (*mauri*) of the root should vanish and return no more. Hoake did not come back from Hawaiki, but his descendants in the sixth generation arrived in

New Zealand with their canoes loaded with *Kumara*. The skull of Taukata was taken from its burial-cave and was set up on the edge of the plantation, a seed *Kumara* being placed in each eye-socket of the skull. From that time on, one of Taukata's descendants was slain each time the *Kumara* ceremonial was observed and the blood of the victim sprinkled on the door-posts of the *Kumara*-store.

All readers of Mr. Frazer's books are aware of the wide-spread ceremonies attending the planting and harvesting of crops. We cannot, of course, expect to find among a people like the Maoris (to whom corn was unknown) any ceremony resembling "the Corn Mother," etc., but it appears to me that those older and more terrible rites connected with the worship of "the Spirit of Vegetation" were once as fully practised by the Polynesians as by the better known peoples of the ancient world.



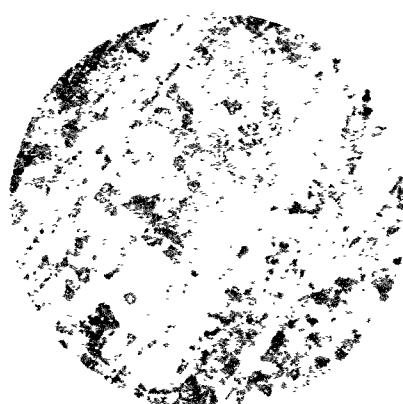




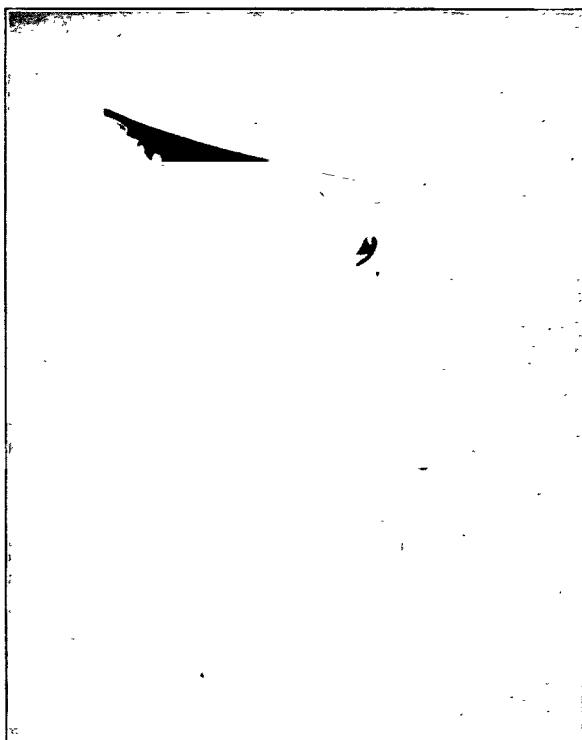




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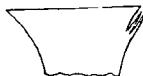
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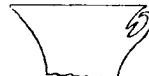
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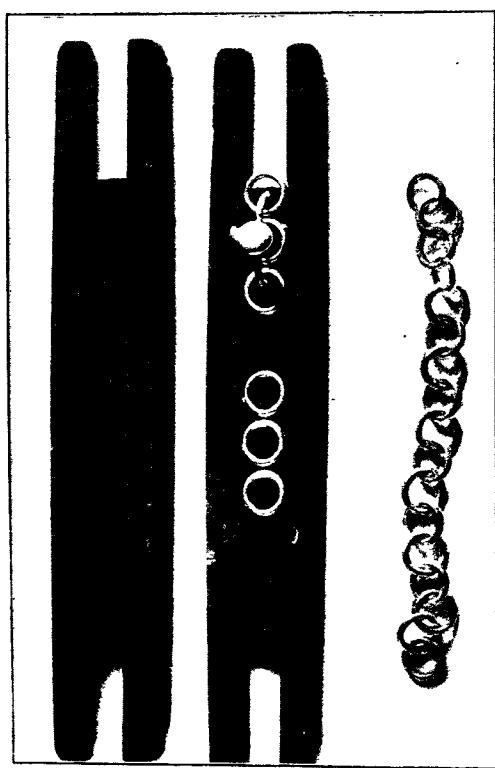
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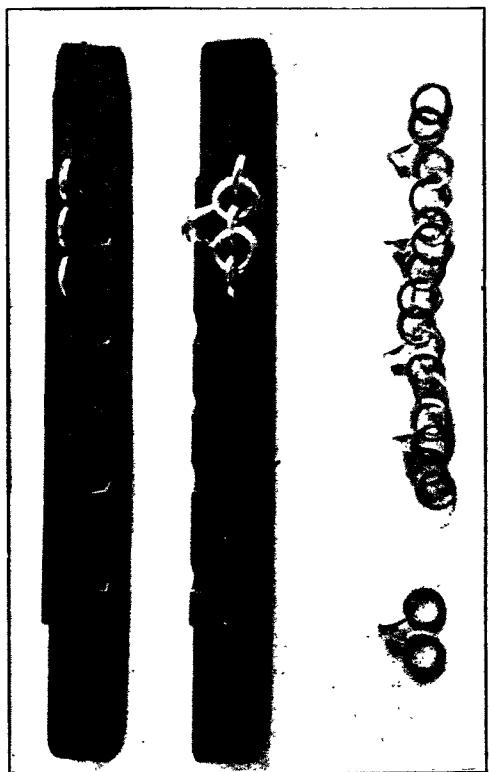
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## NOTES ON MALAY METAL-WORK.

By WALTER ROSENHAIN, B.A., St. John's College, Cambridge.

[PRESENTED FEBRUARY 12TH, 1901. WITH PLATES X, XI.]

MR. W. W. SKEAT recently asked me to examine a number of specimens of Malay metal-work, in the hope that the use of the microscope would enable me to settle all doubts as to the nature of some of the metals used by the Malays. The present notes embody the results of the microscopic examination but in all other respects are based on Mr. Skeat's account of processes which he has himself witnessed. The experimental work described below was carried out in the Engineering Laboratory at Cambridge by the kind permission of Professor J. A. Ewing, F.R.S.

## I. THE MAKING OF A MALAY KRIS.

The most interesting specimen is a damascened Malay *kris*-blade, illustrated in Pl. X, 1, XI, 3. It was made for Mr. Skeat near Trenggānu by a Malay smith who spent four days on the work. The tools of the Malay smith are simple and of somewhat primitive construction, but do not differ very much from those to be found in a European smithy; forge, anvils, hammers, tongs, chisels and files are all in use, but the European "cold and hot setts" used for cutting off pieces of iron are replaced in the Malay smithy by a tool called *lēpa*. This is simply a small "cold chisel," but it is fixed in a long wooden handle from which the chisel projects at right-angles, and in use the head of the chisel is struck with a hammer while the handle merely serves to hold it in place. Another peculiar feature of the Malay smithy are the bellows, which are made on the cylinder-and-piston principle.

The Malay smith begins the manufacture of a *kris* by making a pile of short bars, as shown in Pl. X, 2. In this pile it will be seen that the bars are alternately thick and thin, and according to the Malay smith, the thick bars are made of a different metal from that of the thin bars. In fact, one set of bars had been made by cutting up and forging down a rod of wrought-iron obtained, presumably, from Singapore, while the others were made by straightening and drawing down the blade of a weeding-instrument called *kīl*. The smith called the wrought-iron *bēsi suē*, while he called the metal of the hoe-blade *bēsi pāmor*, so that he seems to have regarded them as two different kinds of iron; on the other hand the Malay name for the steel of their tools is *bēsi bāja*—so that the smith must have known that the hoe-blade he used was not made of the same steel as his tools. The

microscopic examination of specimens of these metals has, I think, settled the question of the nature of the *besi swē* and *besi pāmor* used in Mr. Skeat's specimen.

The pile of nine bars as seen in Pl. X, 2, is then heated, welded together and drawn down to a considerable length; but the welding process is very primitive:—the pile is heated, dipped in water mixed with clay, re-heated, and then hammered together. The long bar so formed is heated again, and is then bent into the form of the scroll seen at (*a*) and (*b*) in Pl. X, 3. It should be remembered, however, that in making this scroll, the long bar is so held that the bending takes place in the plane of the welds, so that, in the scrolls as we see them in Fig. 3, we have nine laminæ standing on edge next to one another, but of course welded together. Two such scrolls are used for each *kris*.

In the next step of the process, *besi bāja*—i.e., steel derived from old tools—is forged into three pieces, shown at (*c*), (*d*) and (*e*) in Fig. 3, corresponding in shape to the two scrolls (*a*) and (*b*). The central layer (*d*) is much thicker than the others and ultimately forms the body of the blade. Finally two small pieces are cut from the laminated bar of which the scrolls have been made, and are bent to form the pieces shown at (*f*) and (*g*) in Fig. 3. The seven pieces shown in Fig. 3 are then welded together, being placed in the order in which they are shown in the figure, the result being a bar having a central layer of tool-steel, with a layer of laminated scroll on either side of it, and that again covered by a thin layer of steel. When this pile has been welded it is forged down to the length and thickness required to give a blade of the desired size. This is done with some care, as the Malays believe that the dimensions of the finished *kris* are of great importance in bringing good luck or misfortune to the wearer.

The “haft” of the *kris* is then formed by notching the edge of the blade close to its base and gradually drawing the portion between the notches down to the form of a thin spike which is intended to enter the hilt. The next step in the making of the *kris* is the production of the waves or sinuosities of the edge. Where these are small and numerous, they are produced by grinding and filing, but where they are fairly long they are made by forging. In this operation the entire blade is bent alternately to one side and then to the other; this is done by supporting its ends upon two anvils and holding it edge up while it is struck with a hammer. But the bending is localised at each successive spot required, by first heating the blade and then cooling it with water, leaving only that part red-hot where the bending is to occur. Each wave thus represents a separate operation of heating and bending.

When the waves are finished, the *kris* is driven into the ground for about two-thirds of its length and thus held firmly while the *dagu* or “chin” of the blade is formed. Two notches are cut in one edge of the blade, the notches are filed out and the small tongues of metal left are then bent as indicated in Pl. XI, where (4), (5) and (6) represent three successive stages of the process.

The blade is then withdrawn from the ground and its cutting edges are roughed out with a file, the blade being held in V-blocks. In this operation the

thick central portion of the blade is carefully left untouched. The next step is to heat the haft and twist it in a way which is believed by the Malays to give it a better hold on the hilt. Then the collar or guard is welded on the blade at the haft end. This collar is made of a piece cut off from the end of the blade in the rough state and therefore consists of alternate layers of steel and "laminated scroll". The piece is forged to the proper shape, punched to receive the haft, and notched on the under side so as to form a sort of "mortice and tenon" joint with the blade when pushed down upon it. Some indentations are also punched on the sides of this collar and it is claimed that they cause the pattern to appear more clearly at a later stage.

The blade being now completed, is hardened by first heating in the forge and then quenching in water, the temper attained being a mere matter of accident or guess-work. The blade is then ground to its final shape on a grindstone hung in a frame; the stone is driven by a string which is pulled and released in such a way as to alternately wind and unwind itself on the spindle of the stone. When such a grindstone becomes eccentric through wear, the Malay smith "trues" it by turning, much as an English smith would do.

The central portion of the blade has been ground down a little in the last operation, but now the whole blade is filed down and is then ready for "pickling" or etching. The blade is laid in a wooden trough containing a mixture of sulphur, salt and boiling rice-water, some of this mixture being rubbed all over the *kris* with a spatula. The blade is left in this liquid for two or three days, when the damascened pattern appears on the surface, and it only remains to clean the blade with limes.

Two questions arise in connection with this process of *kris*-making:—

What are the metals used, and what is the nature of the action that produces the damask pattern? I hoped that the microscope would enable me to throw some light on these questions, and I accordingly examined sections of metal cut from the layers of the final pile shown at (d), (c), and (a) in Fig. 3. The specimens were cut from the ends of the pieces (d), (c) and (a) respectively, and a surface of each was polished and etched with dilute nitric acid in the manner customary for microscopic examination. As was to be expected, the specimens (c) and (d) were both found to consist of the same metal, a "high carbon steel" such as is commonly used for tools and cutlery; in the specimen it was in the soft or "annealed" state. In this case the evidence of the microscope bears out exactly the statements of the Malay workman as to the nature of the material.

With specimen (a) the result was rather different. From Mr. Skeat's account of its manufacture, from alternate layers of *pāmor* and *sweē* iron, I expected a transverse section of the scroll to show alternating bands of two different metals such as wrought-iron and mild steel. The actual section simply shows a series of layers of common wrought-iron, differentiated by no peculiarities of structure or composition, and only marked out by the lines of the very imperfect welds between the layers. The imperfection of these welds is very marked, and is due to the Malay's neglect

to clean the welding surfaces adequately, and the imperfection of the welds plays a most important part in the formation of the damask pattern. Pl. XI, 1 and 2 are photographs of sections of the laminated scroll, seen under normally reflected light, with a magnification of 80 diameters. The micro-structure is typical of common wrought-iron; some of the black bands seen in the photographs are traces of slag-bands which have been eroded by the acid used in etching; the most marked bands, however, are due to the imperfection of the welds between the laminae, where oxide and other impurities have been imprisoned.

The microscope then first of all shows that the laminated scroll is made up of layers of one kind of metal only; in this specimen, at any rate, the *bēsi swē* and the *bēsi pāmor* of the Malay smith differ only in name. It is of course quite possible that Malay tradition requires the smith to use iron from two different sources although it seems probable that the smith believed he was dealing with two different kinds of metal. It is also just possible that in the specimen I have examined, the scroll was accidentally made of one metal only; but this is unlikely, particularly as I believe the damask pattern can be produced with a scroll made of iron only. According to this view the whole process depends upon the imperfection of the welds between the laminae of the scroll—an imperfection which is very clearly shown by the microscope. This scroll is placed between two layers of steel and subjected to prolonged hammering at a high temperature, the blows falling edgewise on the welded laminae. No better treatment could be designed for the purpose of opening the welds and spreading the individual layers, and at the same time driving the steel into the interstices from above and below. At the temperature of working, the steel is softer and more nearly fluid than the iron, and will therefore force its way into any opening that may occur. For the later stages of the process the outer layer of steel is entirely ground away, and the pickling or etching process brings out the pattern by attacking and corroding the steel while leaving the iron untouched. It is a well-known fact that steel can be stained and corroded by many organic substances—such, for instance, as the juice of the liquorice-root—which do not attack iron, and the active element of the Malay's pickling-bath is probably a substance of this kind.

Final confirmation of the correctness of this view could only have been obtained by cutting a section through the finished *kris*, but as this would have destroyed the specimen, I was not able to do it. Careful examination of the pattern on the surface, however, strongly confirms the view stated above; the pattern is seen to consist of bright uncorroded veins of iron, embedded in, and slightly projecting from a matrix of blackened and corroded steel. Taken with the microscopic evidence showing that the scroll consists of one metal only, I think these facts justify the conclusion that this theory of the production of the pattern is correct.

## II. MALAY GOLDSMITH'S TOOLS.

The next specimens with which I had to deal were a set of tools and implements used by Malay gold and silversmiths. These, it should be remembered, are used for working purer, and therefore softer, metal than is used in Europe. The Malays melt their gold in very small clay crucibles, on a charcoal fire, in a portable hearth, with bellows attached; but much of their work is wrought—*i.e.*, done by hammering, filing, chiselling and embossing. Some of the more interesting tools are shown in Plate X, A–D. A is a conical piece of hardwood used for forming rings by bending and hammering gold and silver wire. The hammer is shown at B; its head is made of the tip of a bullock's horn. This very light hammer is also used with the set of punches and chisels seen at C. These chisels have a great variety of points and edges, and they are made from a metal which is almost white, with a slight yellow tinge; this metal is also used for making gongs. An analysis shows it to consist of 70·8 per cent. copper and 29·2 per cent. tin; it is thus a hard bronze not very different from speculum-metal. Its microstructure which I have examined, is fairly characteristic of bronzes containing about 30 per cent. of tin; the microstructure further shows that the metal has not been wrought, but cast in its present shape and finished by cutting and filing. The metal has in fact been cast in a chill mould, and is consequently hard but brittle.

Plate X, D, illustrates the slab moulds used by Malay goldsmiths; these moulds bear ornamental impressions into which gold sheet or wire can be hammered or punched. The impressions in the mould itself are produced while the material of the mould is still soft and plastic. According to the Malay account these slabs are made of a substance called *pandang* which is made by boiling a stiff mixture of finely powdered laterite or limonite, "rock rosin," and cocoanut oil. Mr. Skeat's specimen, however, proved on examination to be a slab of practically pure tin. Mr. Skeat supposes that this is an exceptional example and that the Malays as a rule do use *pandang*.

## III. VESSELS OF COPPER AND WHITE METAL: *Cera perduta* PROCESS: MALAY LATHE.

Mr. Skeat's specimens further include a number of hollow vessels of copper and white metal. The white metal is called by the Malays "white copper," but it consists of 95 per cent. tin and 5 per cent. copper. These hollow vessels are produced by casting, and the method used by the Malays is similar to the ancient European *cera perduta* process. First, a wax model of the object to be cast is made. The model is then bedded in clay, put on in successive layers alternately with layers of sand. The entire mould when small enough is attached to a stick which serves as a handle; as soon as it is dry the mould is heated and the melted wax is allowed to flow out by a small hole pierced through the clay for that purpose. The mould then contains a cavity of the precise shape of the original wax model, and an article of that shape can be cast by pouring the molten metal in through

the hole through which the melted wax had run out. The articles cast in this way have a rough surface which the Malays remove by turning the article in a lathe. The Malay lathe is always a simple affair, and in one form of it the work is made to rotate in alternating directions by means of a cord which is attached to a flexible rod and passes round part of the work on the lathe to a treadle. When the treadle is pressed the string is pulled and the work rotates in one sense while the flexible rod becomes bent; the treadle and cord are then released and the bent rod straightens itself, driving the work in the opposite sense. This appliance has also been in use in Europe.

#### IV. CHAINS MADE BY CASTING.

Another striking feat in metal-work is the production of chains by casting which is practised by the Malays. These chains are used to weight and strengthen their casting-nets, and they consist of jointless rings about  $\frac{3}{4}$  inch in diameter as at *u* in Fig. 8; the material is a fusible alloy of lead and tin. Jointless chains, produced by casting, are made by European and other goldsmiths, but their production by the Malays is evidence of very high development of metallurgical arts, particularly if the ingenious and well-made moulds are of Malay design and workmanship; and this, I have reason to believe, is the case. The mould itself consists of four separate pieces of brass which fit well together; each piece is attached to a wooden handle by means of which it can be attached to its fellows or removed from them. Pl. XI, 7 and 8 show the mould in two positions, with portions of a chain in place. Each length of chain is produced in two stages. First, a set of rings are cast, attached to one another in pairs (*u*), by using the mould as shown at *x*, only without the three loose rings. These pairs of rings are then cut off from the "tags" which hold them together; then the mould is opened as seen in Fig. 7, and the separate rings are inserted into the recesses provided for them, as at *w* (lower part). Their position now, relatively to the other portion of the mould, is shown at *v* in Fig. 8. From this figure it will be seen that if, when with these rings in position, the mould is closed and another cast is made, the new set of attached rings will be linked through those placed in the mould, as at *w* (upper part) in Fig. 7, and at *x* in Fig. 8; the result, when released from the mould, being shown at *y* in Fig. 8. It now only remains to detach the "tags" resulting from the second casting, and the finished chain is obtained as at *z* in Fig. 7. It is obvious that by placing the last ring of one chain in the first recess of the mould when the next chain is being made, successive lengths of chain may be joined up; so that endless chains can readily be made. This process is very simple in practice, so that it is commonly carried out by the Malay women; but the design and workmanship of the mould are proofs of great mechanical skill and ingenuity.

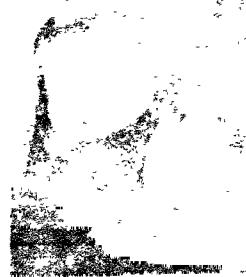




*a*



*b*



*c*

2. SKULL OF TORORUKE, OF KABAKADA, IN NEW BRITAIN: HE LIVED SEVEN YEARS AFTER OPERATION.



*a*



*b*



*c*

1. SKULL OF TOARA, OF KABAKADA, IN NEW BRITAIN: HE DIED TWO HOURS AFTER OPERATION.



*a*

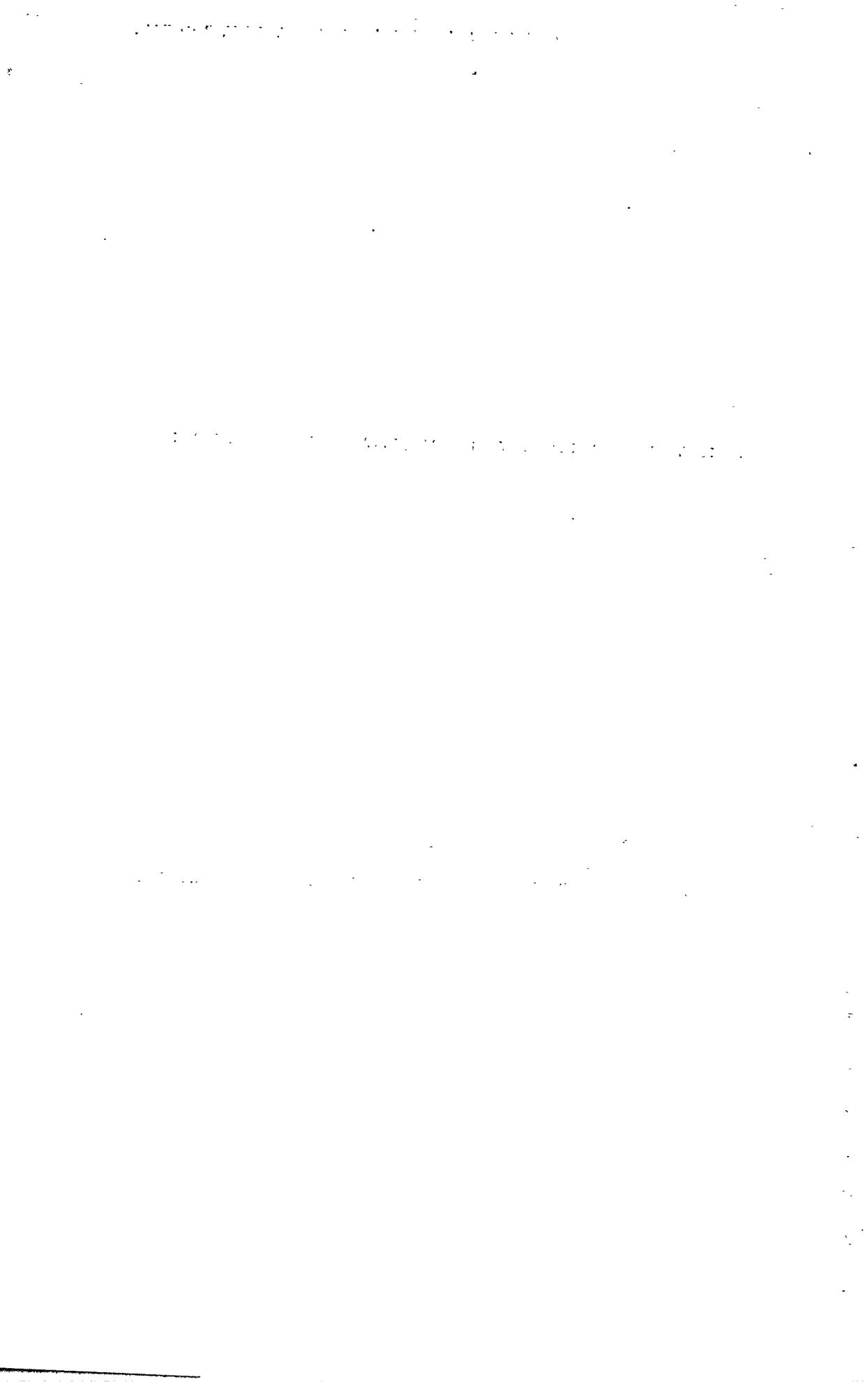


*b*



*c*

3. SKULL OF TIGHAN, OF OLOLAI, IN NEW IRELAND: OPERATION TO CURE HEADACHE.

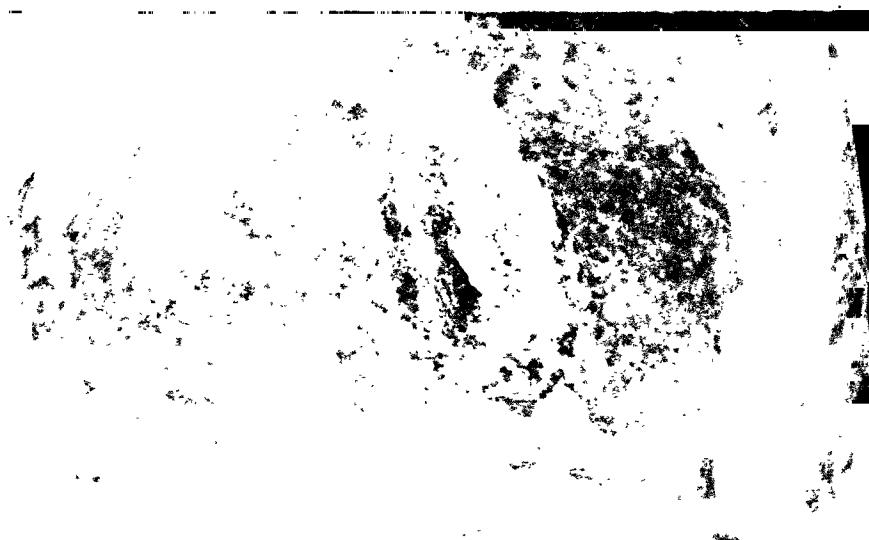




2. SKULL OF TORORUKE: SHOWING SUBSEQUENT GROWTH OF NEW BONE.



1. SKULL OF TOARA: SHOWING UNHEALED WOUND WITH FRESH SCRATCHES.



3. SKULL OF TIGHAN: SHOWING SLIGHT OPENING WITH EDGES HEALED OVER.

## TREPHINING IN THE SOUTH SEAS.

BY THE REV. J. A. CRUMP.

[PRESENTED MARCH 12TH, 1901. WITH PLATES XII, XIII.]

ABOUT eighteen months ago I wrote a short article on "Native Surgery in New Pommern" (New Britain) to the small monthly periodical issued by the Missionary Society of which I am an agent. That article has excited so much interest in the colonies—and even in Europe—that perhaps I am right in assuming that a more detailed account, containing the results of my further research, may be found of value to the cause of science and acceptable to the Anthropological Institute.

My previous inquiry was limited to New Britain itself, and in that part of the district the operation of trephining is practised on the skull solely in cases of fracture.

In the native fights the sling is the most formidable weapon used, a smooth stone as large as a pullet's egg being thrown with moderate accuracy but considerable force. A blow from a sling-stone is generally the cause of the fracture for which the operation is found necessary; the depressed portions of bone or haemorrhage beneath the skull causing compression, and death almost invariably results if the injury is not attended to. Injury caused by the stone-headed club is almost instantly fatal, but the flat two-edged club is not so deadly and permits of an occasional operation.

The man who performs the operation is the wizard or "tena-papait" of the tribe or district, using a piece of shell or a flake of obsidian for a trephine.

An incision is made over the seat of the fracture generally in the shape of a Y or V, and then perhaps some loose fragment is picked out with the finger nail, and while assistants hold back the scalp, the fractured bone is scraped, cut and picked away, leaving the brain exposed to the size of half-a-crown. Then, all loose pieces having been removed, the scalp is carefully laid down and the wound bandaged with strips of the banana stalk about 4 inches wide. These strips are when dry of a spongy nature, the water which formerly filled the cells being replaced by air. Moreover the inner surface is silky to the touch and forms an admirable dressing for tender surfaces. It is astringent in its action and non-absorbent, all discharge escaping below the bandage. Sometimes a few bruised leaves are applied before bandaging. The patient is generally insensible from the time of the injury, and, if consciousness returns during the operation, soon faints away again.

In five or six days the bandages are renewed and in two or three weeks a complete recovery is the result. The number of deaths is about 20 per cent., most

of these resulting from the first injury and not from any complication after the operation. Nearly all the deaths take place during or immediately after the operation, and I am assured that if a patient once becomes conscious he never fails to make a good recovery.

I have recently discovered that on New Ireland (Neu Mecklenburg) the operation is performed not only in the case of fracture but where there is epilepsy and certain forms of insanity as the result of pressure on the brain. I have in my possession a skull which has been successfully trephined in no less than five places, the man meeting his death some years after the last operation by a blow from an axe. This man suffered from severe headache with local throbbing. The operation was performed each time in the region of the pain, and though no cure seems to have been effected, the operation was at any rate perfectly successful.

The most common form trephining takes on Gerrit Demp Island and the central part of New Ireland is cutting two or three channels down the forehead 3 to 4 inches long. This is done for headache and what is described as a beating or plucking sensation.

There seems to be some benefit in cases of trephining for epilepsy at least for a time. One native at Falabog on the west coast of New Ireland with whom I conversed had been trephined on the top of the skull for this malady and had had no recurrence since the operation. In no case is it thought necessary to avoid the course of the sutures in performing this operation.

After trephining has been performed there is frequent partial temporary paralysis which almost invariably passes away, though in a few cases it is permanent. Idiocy is an occasional result also. But the natives affirm that while the cures of insanity and epilepsy are many, the instances where either malady supervenes after the operation are exceedingly few.

I have pleasure in forwarding herewith three skulls bearing indisputable evidence of the performance of the operation and its success.

No. 1 is the skull of Toara, a native of Kabakada on the north coast of New Britain, who was struck with a sling-stone and trephined. He never became conscious, and died two hours after the operation had been performed. The man who threw the sling-stone is still living as is also the "tena-papait" who performed the operation. From the latter I got my information. The marks of the instrument are easily visible.

No. 2 is the skull of Toruruke, a native of Kabakada, and shows the growth of new bone. He was trephined about seven years before his death.

No. 3 is the skull of Tighan, from the village of Olotai, situated about six miles inland from Palabog on the west coast of New Ireland. This operation was performed to cure headache. There are many people in this village who have been trephined. It has become fashionable, and a handsome girl or boy is generally persuaded to submit to the operation as an aid to longevity, there being no absolute need for its performance.

## DISCUSSION.

MR. VICTOR HORSLEY, after having read Mr. Crump's paper to the Fellows of the Institute present, said:—The paper by Mr. Crump which I have had the honour of reading to you is descriptive of the three skulls which are here before you. They are skulls of Melanesian natives. We are informed also that the individual natives from whom these specimens were obtained have been operated on by the wizard or high priest; further the history of each of these three cases is known to Mr. Crump. When I received this paper together with the specimens I recognised at once its great importance to anthropology, important because, as far as I know of such surgical operations of the Pacific Islanders, these are the first specimens of which we have absolutely reliable clinical histories. Mr. Crump's paper is of very great value because among these clinical histories there is evidence that the opening of the skull was done for the condition of headache. From the time of the original publication on the subject of neolithic skulls by Broca this possibility of the operation having been done for headache has been discussed and has been rejected by many anthropologists. To-night we are in the position of being able to discuss this question with much more certainty than we could do before to illustrate this point in regard to headache. I venture to show to you some lantern slides of Peruvian skulls which I have collected, in which the operation of trephining has been performed in the same region as in these skulls. As you will not be able to see at a distance the points in the specimens I have made photographs of each, and we will now put them on the screen (Plates XII, XIII).

No. 1 is the skull of Toara, a native of Kabakada on the north coast of New Pommern, who was struck with a sling-stone and trephined. He never became conscious, and died two hours after the operation had been performed. The man who threw the sling-stone is still living, as is also the "tena-papait" who performed the operation. From the latter Mr. Crump got his information. The marks of the instrument are easily visible.

Pl. XII, 1c, is the front view of the skull; XII, 1a, is the side view showing the opening. It is obvious from the modified photograph that the edges of the hole are sharp and unhealed. The relation of the opening to the coronal and sagittal sutures indicates that in this case the injury was over the motor region. A patient with a depressed fracture in that spot, if the fracture is severe, would be unconscious and paralysed on the opposite side of the body.

I show again on the screen under more favourable conditions of light the photograph of the opening. (Plate XIII, 1.) You see now the slips made by the wizard, using a sharp shell or flake of obsidian for a trephine. The opening has been deliberately made by sawing out, and the same slips can be seen on some of the neolithic skulls. This is the best of the three specimens as regards showing the purposive nature of the operation. There is no indication of the opening having been healed, and the patient, no doubt, as Mr. Crump describes, died two hours after the operation.

No. 2 is the skull of Toruruke, a Kabakada native, and shows the growth of new bone. He was trephined about seven years before his death.

This is another sling-stone case, but it is in a particular part of the skull. You see in front view (Pl. XII, 2c) that the ridge of the superciliary ridge has been depressed towards the orbit, and the suture between the frontal and lachrymal bone has been started downwards. There has been a fissured fracture running along the line I have shown you. The region is exactly over the frontal sinus. The front wall of the sinus has been destroyed and in its place we have a saucer-shaped cavity.

The patient suffered from a depressed fracture of the frontal sinus which has been partly operated on, viz., by picking out the fragments of the anterior wall. This is not trephining in the proper sense of the word; there is no indication of scratches or sawcuts.

I would like to point out that in the Broca Museum at Paris there is a parallel example of a Peruvian skull where, however, in the region of the frontal sinus there has been a deliberate trephining by boring. Evidently the operator had bored through the anterior wall with the intention of breaking down the bone, but he found himself in a new part of the world as far as he was concerned, for he saw that he was not through the skull but had bone still beyond. Under these circumstances he abandoned the operation. That is an instance of distinct trephining. This case here is a mere treatment of depressed fracture of the anterior wall of the frontal sinuses, and by using the electric light you can see that the inner table here is intact. Here is the lateral view of the skull and here is another view of it. The last photograph is simply a magnified view of the opening.

I will now give you the details of the third case.

No. 3 is the skull of Tighan from the village of Olotai, situated about six miles inland from Palabog on the west coast of New Ireland. This operation was performed to cure headache.

Here, you see, as I said just now, surgical ethics do not appear to enter into the matter. It is a very interesting specimen. It is an ordinary case of making an excavation like a gutter into the skull, almost an exaggeration of a linear osteotomy, that is to say, cutting into the bone in a line in order to relieve the so-called tension. In this case there has been an opening made of the inner table in a slight degree, to alleviate the sense of pressure from which patients suffering from all varieties of headache are so apt to complain of so persistently. The operation in this case has been over the frontal eminence where people usually refer all forms of generalized headache.

Plate XII, 3a, is a lateral view showing the opening. In Plate XII, 3b, I show you it as seen from above.

In Pl. XIII, 3, which is the magnified photograph of the opening, I simply want to show that this is a healed case. You notice that the edges of the opening are rounded, and that the whole site of the operation is smoothed over.

With that I bring to an end my remarks on Mr. Crump's paper. It is quite obvious that he has a wonderful knowledge of this operation being performed in this island by the islanders, and it is a great loss to the Institute that he has not given us more facts to go upon.

We are now in a position to explain the neolithic skulls better. This photo-

graph I now show I made of all the cases of neolithic trephining which were known to me, and in which I had the opportunity of verifying the site of the operations. I have pointed out that the field of the operations fell within what is called the motor area of the brain, the portion of the brain, irritation of which by a depressed fracture of a limited area would cause epilepsy, and epilepsy as you know among all untutored people, is apt to be ascribed to the influence of a spirit. Further we know that all such fractures are sources of headache and finally we recognise that if the injured part of the skull is trephined and the depressed portions of the bone removed that the headache will be cured and possibly the epilepsy if the damaged portion of the brain is also removed. But the mere cessation of pressure suffices sometimes to cure the epilepsy. Broca's explanation that the operations were done for epilepsy was, we may reasonably suppose, justified by this consideration, but it was necessary to support this view by evidence from the savage races, and here we find the operation is performed exactly under the circumstances which I have described, viz., the condition of depressed fracture leading to epilepsy.

This is one of the neolithic skulls showing scratches on the margin of the opening, and is a parallel to Mr. Crump's first skull.

Coming now to the question of trephining for headache I find that in the Peruvian prehistoric skulls, which I examined most of, the trephining seemed to have been performed in the frontal region.

I show a photograph taken from Squier's *Peru*, and probably from a case that terminated fatally.

A portion of the skull has been removed by very neat saw-cuts, but there is an indication of altered bone round the site of operation undergoing suppuration, and from the sharpness of the edges it is reasonable to suppose that there was a fatal infection of the wound.

The next photographs are of two specimens from America; in one you see there is a healed saw-cut, and in the other we have what may be a healed depressed fracture.

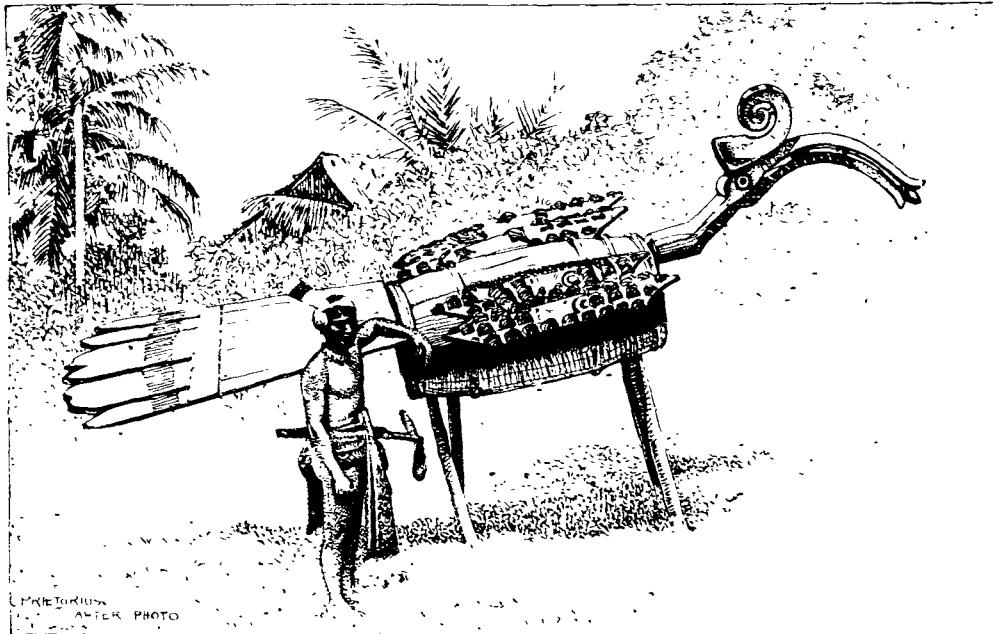
Both these instances you see are in the frontal region. If now, as appears from Mr. Crump's paper, we have definite absolute evidence that the operation is done for headache and is done in the frontal region, then I think we have reasonable ground for believing that the Peruvian operation was probably done for headache.

On the question of this form of gutter operation for headache both the photograph I showed you on the screen and the specimen demonstrate it. You will see that in such cases we have a gutter with symmetrical sides, symmetrical in depth and steepness suggesting that it was made by deliberate sawing out first of one side and then of the other.

A skull found in this country shows an opening simulating a trephine hole. The photograph of the skull is now on the screen, and I have also brought the original with me. It is a skull which Mr. Henty found in the British camp near Worthing. I was present at the excavation and as he handed me the skull I recognized the character of the specimen. I showed the skull to the Society of Antiquaries when all the finds were described. In this particular case we have an oval opening with

ledge-like sides leading down to an opening in the inner table. On examination internally there is no injury to the inner table whatsoever, it suggests, therefore, that this opening of the skull was scraped out. It was done before the man's death because the bone is healed. In front of this is a longer mark produced obviously by a sword or some similar instrument. What is the nature of the hole? On looking at the opening very closely you see there is an indication, as if one side was a little steeper than the other. I think that skull No. 3 of Mr. Crump's will help us to determine whether this was a trephine opening or not. At present I think the evidence is against it. You must take it from me that one side does seem smooth and the other seems a little more broken. This side of the opening is steeper and smoother than the other which is rougher and shades off more gradually on to the skull. Before this, when I was examining this skull, and unable to make up my mind definitely, I found in the Blandford Museum at Salisbury the skull of a New Zealander who had been killed by the well-known horizontal cut with a stone axe behind the ears at the occipital protuberance. But before he had been killed he had been cut at and had avoided a fatal blow; the edge of the weapon, however, had cut down to the bone, and produced a smooth edge on one side, and on the other the rough edge like this Saxon skull. I would like to draw your attention to the fact that Mr. Bulleid found, on one of the two skulls in the pile dwelling at Glastonbury, a glancing cut which had removed a portion of the skull, but the man had been killed by a blow at the back of the skull near the respiratory centre, which the savages long ago have found out to be the fatal spot, and which Professor Haddon has fully described for the Torres Straits.





1. WOODEN MODEL OF A HORNBILL, MADE BY IBANS, AND USED IN PEACE-MAKING CEREMONIES. (*From a photograph by A. C. Haddon.*)



2. TAMA BULAN SPRINKLING IMAGES OF BALI PENYALONG WITH THE BLOOD OF A FOWL (p. 176). (*From a photograph by C. S. Myers.*)





1. MURIK TOMB, SURMOUNTED BY A SMALL HUMAN IMAGE TO WHICH A LIVE FOWL IS USUALLY TIED. *Photograph by C. G. Seligmann.*



2. SPRINKLING IMAGES OF BALLI PENYALONG WITH THE BLOOD OF A FOWL (p. 183, cf. Pl. XIV, 2). *Photograph by C. S. Myers.*

## THE RELATIONS BETWEEN MEN AND ANIMALS IN SARAWAK.

BY CHARLES HOSE, Resident of the Baram District, and W. McDougall,  
Fellow of St. John's College, Cambridge.

[PRESENTED MAY 28TH, 1901. WITH PLATES XIV, XV.]

WHEN in the year 1898 we travelled together through every part of the Baram District and began to put together the materials for this paper, one of us had already lived for more than fourteen years among the tribes of the district, and by constant observation and inquiry had become familiar with and had written down from time to time careful notes of many of their customs and beliefs. Among these were a large number that showed how all the various tribes hold certain animals and plants in peculiar regard, how the conduct of the people is to a great extent guided by well-established systems of augury, and how their relations to many of the creatures among which they live are regulated by strict rules and prohibitions. We determined, therefore, to make as complete as possible our knowledge of the animal- and plant-superstitions of the various tribes, and believing that by so doing we should find evidence that many of them are survivals from a system of totem-worship now decayed, we kept this possibility constantly in mind. In making these more systematic inquiries we enjoyed the great advantage of being guided in our work by that very considerable mass of information previously collected by one of us with a mind entirely free from preconceived ideas as to what should be expected. We would point out that, since one of us has lived for so long on terms of intimacy and friendship with members of most of the tribes and is familiar with the various languages spoken by them, and since the people seldom showed any reluctance to exhibit and explain their customs to us and were usually pleased to allow us to take part in the ceremonies and rites, a considerable weight, as negative evidence, must be allowed to our failure to find traces of any particular custom or institution.

We shall first describe in some detail all that we have been able to learn of the animal-superstitions of the Kenyahs, the tribe with which we are most familiar. We shall then give a condensed account of similar customs and beliefs as they occur among other tribes of the district, describing more particularly those peculiar to the different tribes, and especially those connected with the "Nyarong" or Spirit-helper of the Sea-Dayaks. We shall conclude with a short discussion of the problems suggested by our observations, the problems of the origin and meaning of the various customs.

### THE KENYAHS.

The Kenyahs inhabit a district far inland among the head-waters of the Baram river. According to their own tradition they came into the basin of the Baram from the east some hundred and fifty years ago. From that time until the last few years they, in conjunction with the Kayans, an allied tribe, which seems to have migrated to the Baram a little later than the Kenyahs, had maintained a dominion of terror over all the neighbouring peoples, and they have had extremely little intercourse of a friendly nature with any more civilised folk, whether Malay, Chinese, or European.

At the present time they are settled in village-communities thinly scattered on the banks of the tributaries and upper parts of the Baram river. Each community, consisting of thirty, forty, fifty or more families, lives in a single long house massively built of hewn timber, and raised on great piles of iron-wood twenty or thirty feet above the river bank on which it stands. Each community is ruled over by a chief whose authority is usually very considerable, and in the case of a chief of ability and strong character is always very great. Their principal food is rice, which they cultivate assiduously. Their domestic animals are the pig, the fowl and the dog, and the two former they eat not infrequently. By hunting and fishing they add to the variety of their food, but these pursuits are regarded as sports rather than as means to obtain the necessities of life. They are skilful and artistic handcraftsmen in ironwork, basket-making, wood-carving and rattan-lashing, and they make rude earthen vessels for cooking. Their clothing was chiefly, and still is in many cases, of bark-cloth. Their weapons are the sword and spear and blow-pipe with poisoned darts.

They are an extremely warlike people, and are ever ready to defend themselves against attack or to make war on others, either in following up some blood-feud or in order to secure the human heads that play an essential part in some of their rites.

They believe in a beneficent Supreme Being and in a great number of less powerful spirits. In fact, they may be said to attribute a soul or spirit to almost every natural agent and to all living things, and they pay especial regard to those that seem most capable of affecting their welfare for good or ill. They feel themselves to be surrounded on every hand by spiritual powers, which appear to them to be concentrated in those objects to which their attention is directed by practical needs; adapting a mode of expression familiar to psychologists we may say that they have differentiated from a "continuum" of spiritual powers a number of spiritual agents with very various degrees of definiteness. Of these the less important are extremely vaguely conceived, but are regarded as being able to bring harm to men, who must therefore avoid giving offence to them and must propitiate them if they should by ill-chance have been offended. The more important, assuming individualised and anthropomorphic forms and definite functions, receive proper names, and are in some cases represented by rude images, and become the recipients of prayer and sacrifice. The spirit of any object or

agent, or perhaps we should rather say the thing in its spiritual aspect, is usually denominated by prefixing the word "Balli" to the ordinary name. Thus Balli Sungei (Sungei = river) is the spirit or god of the river, Balli Atap (Atap = roof) is the spirit or god who protects the household from harm of all sorts; a wooden image of him generally stands before the main entrance to the house. Ballingo is the god of thunder; Balli Bouin (bouin = pig) is the form of address to the spirit of any pig about to be sacrificed. More important than any of these is Balli Penyalong, the Supreme Being. To him the Kenyahs pray for guidance in important undertakings, while the women pray to Doh Penyalong, his wife.

#### *The Cult of the Hawk.*

Of the many animals that the Kenyahs dare not eat or kill those which most influence their conduct are the omen-birds, and among the omen-birds the common white-headed carriion-hawk (*Haliaster intermedius*) is by far the most important. The Kenyahs always observe the movements of this hawk with keen interest, for by a well-established code of rules, they interpret his movements in the heavens as signs by which they must be guided in many matters of moment, especially in the conduct of warlike or any other dangerous expeditions.<sup>1</sup> The hawk is always spoken of and addressed as Balli Flaki, and is formally consulted before any party of Kenyahs sets out from home for distant parts.

To illustrate the formalities with which they read the omens we will transcribe here a passage from a journal kept by one of us. The occasion of the incidents described was the setting out of a large body of Kenyahs from the house of Tama Bulan, a chief who by his personal merits has attained to a position of great influence among the other Kenyah chiefs, and who has been confirmed in his authority by His Highness the Rajah of Sarawak. The object of the expedition was to visit and make peace with another great fighting tribe, the Madangs, who live in the remotest interior of Borneo. Tama Bulan, whose belief in the value of the omens has been slightly shaken, was willing to start without ceremonies and to make those powers, which he believed to protect us, responsible for himself and his people also. But the people had begged him not to neglect the traditional rites, and he had yielded to their wishes.

"At break of day, before I was up, Tama Bulan was washed by the women at the river's brink with water and the blood of pigs to purify him for his journey, and later in the morning the people set to work to seek omens and a guarantee of their safety on the journey from the hawks that are so numerous here. A small shelter of sticks and leaves was made on the river-bank before the house, and the

<sup>1</sup> We find that the practices of these people in connection with omens or auspices so closely resemble those of the early Romans that it seems worth while to draw attention to these resemblances, and we therefore quote in footnotes some passages from Dr. Smith's *Dictionary of Classical Antiquities*, referring to the practice of the Romans: "in the most ancient times no transaction, whether private or public, was performed without consulting the auspices, and hence arose the distinction of *auspicia privata* and *auspicia publica*."

women having been sent to their rooms, three men of the upper class<sup>1</sup> sat under this leaf-shelter beside a small fire, and searched the sky for hawks. After sitting there silently for about an hour, the three men suddenly became animated; one of them took in his right hand a small chick and a stick frayed by many deep cuts with a knife and waved them repeatedly from left to right, at the same time pouring out a rapid flood of words. They had caught sight of a hawk high up and far away before them, and they were trying to persuade it to fly towards the right. Presently the hawk, a tiny speck in the sky, sailed slowly out of sight behind a hill on the right, and the men settled themselves to watch for a second hawk which must fly towards the left, and a third which must circle round and round. In the course of about half an hour, two hawks had obligingly put in an appearance and behaved just as it was hoped and desired that they should behave; and so this part of this business was finished, and about a score of men bustled about preparing for the next act. They brought many fowls and several young pigs, and a bundle of long poles pointed at either end. Before the house stand upright two great boles of timber, and of either one the upper end is carved into a rude face and crowned with a brass gong (Pl. XIV, 2). These are two images of the one Supreme Being, Balli Penyalong, and they seem to be at the same time the altars of the god. A tall young tree stripped of all but its topmost twigs, stands beside one of them, and is supposed to reach to heaven, or at least, by its greater proximity to the regions above, to facilitate intercourse. As to the meaning of this and many other features of these rites, it is impossible to form any exact idea, for the opinions of these people in such matters are hardly less vague and diversified than those of more civilized worshippers. Tama Bulan, in his character of high priest,<sup>2</sup> took his stand before one of these images, while a nephew, one of the three men who had watched the hawks, officiated before the other and went through exactly the same ceremonies as his uncle, at the same time with him. Tama Bulan held a small bamboo water-vessel in his left hand and with a frayed stick in his right hand sprinkled some of the water on the image, all the time looking up into its face and rapidly repeating a set form of words. Presently he took a fowl, snipped off its head and sprinkled its blood upon the image, and so again with another and another fowl. Then he held a young pig while a follower gashed its throat, and, as the blood leapt out, he scattered it too on the image, while the score of men standing round about put their hands, some on him, some on one another, so that all were in contact, and joined in the prayer or incantation which he kept pouring forth in the same rapid mechanical fashion in which many a curate at home reads the church service. In the house, meanwhile, four boys were pounding at two big drums to keep away from the worshippers all sounds but the words of their own prayers.<sup>3</sup> Then

<sup>1</sup> "No one but a patrician could take the auspices."

<sup>2</sup> "Romulus is represented to have been the best of augurs, and from him all succeeding augurs received the chief mark of their office."

<sup>3</sup> "Hence devices were adopted so that no ill-omened sound should be heard, such as blowing a trumpet during the sacrifice."

another fowl and another pig were sacrificed in similar fashion at either altar, and the second part of the rite was finished by the men sticking the carcases of the slaughtered beasts each one on the point of a pole, and fixing the poles upright in the earth before the images.

"Tama Bulan now came up into the house to perform the third and last act. A pig was brought and laid bound upon the floor, and Tama Bulan, stooping, with a sword in his right hand, kept punching the pig gently behind the shoulder as though to keep its attention, and addressed it with a rapid flow of words, each phrase beginning 'O Balli Bouin.' The pig's throat was then cut by an attendant, and Tama Bulan, standing up, diluted its blood with water and scattered it abroad over all of us as we stood round about him, while he still kept up the rapid patter of words. Then he pulled off the head of a fowl and concluded the rites by once more sprinkling us all with blood and water. Everyone seemed relieved and well satisfied to have got through this important business and to have secured protectors for all the party during the forthcoming journey. For the three hawks will watch over them and are held to have given them explicit guarantees of safety. The frayed stick that had figured so largely in the rites was stuck under the rafters of the roof among a row of others previously used, and there it will remain, a sign and a pledge of the piety of the people, as long as the house shall stand. And then as Tama Bulan, pretty well covered with blood, went away to wash himself, I felt as though I had just lived through a book of the *Aeneid*, and was about to follow Father *Aeneas* to the shores of Latium."

This elaborate rite, so well fitted to set agoing the speculative fancy of anyone acquainted with the writings of Robertson Smith and Messrs. Jevons and Frazer, was one of the first that we witnessed together. After giving all our facts we shall return to discuss some of the interesting questions raised by it, but it will be seen that we are far from having discovered satisfactory explanations of all its features. Obscure features to which we would direct attention are the use of the fire and the frayed stick, for these figure in almost all rites in which the omen-birds are consulted, or prayers and sacrifices made. The Kenyahs seem to feel that the purpose of fire is to carry up the prayers to heaven by means of the ascending flame and smoke, in somewhat the same way as the tall pole planted by the side of the image of Balli Penyalong facilitates communion with the spirit; for they conceive him as dwelling somewhere above the earth.

Omens are always sought in the way we have described before going out to attack an enemy, and if the expedition is successful the warriors bring home not only the heads of the slain enemy but also pieces of their flesh, which they fix upon poles before the house, one for each family, as a thank-offering to Balli Flaki for his guidance and protection. It seldom occurs that a hawk actually takes or eats these pieces of flesh, and that does not seem to be expected. Without favourable omens from the hawks, Kenyahs will not set out on any expedition, and even when they have secured them they still anxiously look out for further guidance and may be stopped or turned back at any time by unfavourable omens. Thus, should a hawk

fly over their boat going in the same direction as themselves this is a good omen, but if one should fly towards them as they travel, and especially if it should scream as it does so, this is a terribly bad omen, and only in case they can obtain other very favourable omens to counteract the impression made by it will they continue their journey. If one of a party dies on the journey, they will stop for one whole day for fear of offending Balli Flaki. If a hawk should scream just as they are about to deliver an attack, that means that some of the elder men will be killed in the battle.

Balli Flaki is also consulted before sowing and harvesting the rice crop, but besides being appealed to publicly on behalf of the whole community, his aid may be sought privately by any man who wishes to injure another. For this purpose a man makes a rough wooden image in human form and retires to some quiet spot on the river bank, where he sets up a "tegulum," a horizontal pole supported about a yard above the ground by a pair of vertical poles. He lights a small fire beside the "tegulum," and taking a fowl in one hand, he sits on the ground behind it so as to see through it a square patch of sky<sup>1</sup> and so waits until a hawk becomes visible upon this patch. As soon as a hawk appears he kills the fowl and with a frayed stick smears its blood on the wooden image, saying, "Put fat in his mouth" (which means "Let his head be taken and fed with fat in the usual way"), and he puts a bit of fat in the mouth of the image. Then he strikes at the breast of the image with a small wooden spear and throws it into a pool of water reddened with red earth, and then takes it out and buries it in the ground. While the hawk is visible he waves it towards the left, for he knows that if it flies to the left he will prevail over his enemy, but that if it goes to the right his enemy is too strong for him.

When a new house is built a wooden image of Balli Flaki with wings extended is put up before it and an offering of mixed food is put on a little shelf before the image, and at times, especially after getting good omens from the hawks, it is offered bits of flesh and is smeared with pig's blood. If the people have good luck in their new house they renew the image, but if not they usually allow it to fall into decay. If when a man is sitting down to a meal he espies a hawk in the heavens he will throw a morsel of food towards it, exclaiming, "Balli Flaki!"

We have seen that during the formal consultation of the hawks the women are sent to their rooms. Nevertheless many women keep in the cupboards in which they sleep a wooden image of the hawk with a few hawk's feathers stuck upon it. If the woman falls sick she will take one of these feathers and waving it to and fro will say, "Tell the bad spirit that is making me sick that I have a feather of Balli Flaki," and when she recovers her health Balli Flaki has the credit of it.

Although Kenyahs will not kill a hawk, they would not prevent us from

<sup>1</sup> "The person who has to take them (the auspices) first marked out with a wand . . . a division of the heavens called 'templum,' . . . within which he intended to make his observations."

shooting one if it stole their chickens, for they say that a hawk who will do that is a low-class fellow, a cad, in fact, for there are social grades among the hawks just as there are among themselves.

Although the Kenyahs thus look to Balli Flaki to guide them and help them in many ways and express gratitude towards him, we do not think that they conceive of him as a single great spirit as some of the other tribes tend to do ; they rather look upon the hawks as messengers and intermediators between themselves and Balli Penyalong,<sup>1</sup> to which a certain undefined amount of power is delegated. No doubt it is a vulgar error with them, as in the case of professors of other forms of belief, to forget in some degree the Supreme Being and to direct their prayers and thanks almost exclusively to the subordinate power, which, having concrete forms, they can more easily keep before their minds. They regard favourable omens as given for their encouragement and bad omens as friendly warnings.<sup>2</sup> We were told by one very intelligent Kenyah that he supposed that the hawks, having been so frequently sent by Balli Penyalong to give them warnings, had learnt how to do this of their own will, and that sometimes they probably do give them warning or encouragement independently without being sent by him.

All Kenyahs hold Balli Flaki in the same peculiar regard, and no individuals or sections of them claim to be especially favoured by him or claim to be related to him by blood or descent.

#### *Other Omen-Birds.*

Kenyahs obtain omens of less importance from several other birds. When favourable omens have been given by the hawks some prominent man is always sent out to sit on the river bank beside a small fire and watch and listen for these other birds. Their movements and cries are the signs which he interprets as omens confirming or weakening the import of those given by the hawks. Of these other omens the most regarded are those given by the three varieties of the spider-hunter (*Arachnothera Chrysogenys*, *A. modesta*, and *A. Longirostris*). All three varieties are known as "Sit" or "Isit." When travelling on the river the Kenyahs hope to see "Sit" fly across from left to right as they sit facing the bow of the canoe. When this happens they call out loudly, saying, "O, Sit on the left hand ! Give us long life, help us in our undertaking, help us to find what we are seeking, make our enemies feeble." They usually stop their canoes, land on the bank, and after making a small fire, say to it, "Tell Sit to help us." Each man of the party will light a cigarette in order that he may have his own small fire, and will murmur some part at least of the usual formulas. After seeing "Sit" on their left, they like to see him again on their right side.

<sup>1</sup> "It was from Jupiter mainly that the future was learnt, and the birds were regarded as his messengers."

<sup>2</sup> "The Roman auspices were essentially of a practical nature ; they gave no information respecting the course of future events, they did not inform men what was to happen, but simply taught them whether they were to do or not to do the matter purposed ; they assigned no reason for the decision of Jupiter, they simply announced—yes or no."

Next in importance to the spider-hunters are the three varieties of the trogan (*Harpactes Diardi*, *H. Duvancelii*, and *H. kasumba*). They like to hear the trogan calling quietly and sitting on a tree to their left, but if he is on their right the omen is only a little less favourable.<sup>1</sup> On hearing the trogan's cry they own it, as they say, by shouting to it and stopping to light a fire just as in the case of "Sit."

Kieng, the woodpecker (*Lepocetes porphyro melus*), has two notes, one of which is of good, the other of bad omen. If they have secured good omens from the birds already mentioned they will then try to avoid hearing Kieng lest he should utter the note of evil omen, so they sing and talk and rattle their paddles on the sides of the boat.

Other omen birds of less importance are Asi (*Carcineutes melanops*), whose note warns them of difficulties in their path, and Ukang (*Sasia abnormis*), whose note means good luck for them. Telajan, the crested rain-bird (*Platylophus coronatus*), announces good luck by its call and warns of serious difficulties also.

Kong, the hornbill (*Anorrhinus comatus*) gives omens of minor importance by his strange deep cry. His handsome feathers, with their bold bars of black and white, are worn on war-coats and stuck in the war-caps by men who are tried warriors, but may not be worn by mere youths. The substance of the beak of the hornbill is sometimes carved into the form of the canine tooth of the tiger-cat, and a pair of these is the most valued kind of ear-ornament for men. Only elderly men or men who have taken heads with their own hands may wear them. One of the popular dances consists in a comical imitation of the movements of the hornbill, but no special significance attaches to the dance; it seems to be done purely in a spirit of fun. Young hornbills are occasionally kept in the house as pets (cf. Plate XIV, 1).

We know of no other bird that plays any part in the religious life of the Kenyahs or affects them in any peculiar manner.

### *The Pig.*

All Kenyahs keep numerous domestic pigs, which roam beneath and about the house, picking up what garbage they can find to eke out the scanty meals of rice-dust and chaff given them by the women. It seems that they seldom or never take to the jungle and become feral, although they are not confined in any way.

These domestic pigs are not treated with any show of reverence, but rather with the greatest contumely, and yet the pig plays a part in almost all religious ceremonies, and before it is slaughtered apologies are always offered to it, and

<sup>1</sup> "It was only a few birds which could give auguries among the Romans. They were divided into two classes, Oscines, those which gave auguries by singing or their voice; and Alites, those which gave auguries by their flight." "There were considerable varieties of omen according to the note of the Oscines or the place from which they uttered the note; and similarly among the Alites, according to the nature of their flight."

it is assured that it is not to be eaten. We have seen that, in the rites preparatory to an important and dangerous expedition, the chief was washed with pig's blood and water, and that young pigs were slain before the altar-post of Balli Penyalong and their blood was sprinkled on the post and afterwards upon all or most of the men of the household. It is probably true that Balli Penyalong is never addressed without the slaughter of one or more pigs, and also that no domestic pig is ever slaughtered without being charged beforehand with some message or prayer to Balli Penyalong which its spirit may carry up to him. But the most important function of the pig is the giving of information as to the future course of events by means of the markings on its liver.<sup>1</sup>

Whenever it becomes specially interesting or important to ascertain the future course of events, when for example a household proposes to make war, or two parties are about to go through a peace-making ceremony, a pig is caught by the young men from among those beneath the house, and is brought and laid with its feet lashed together before the chief in the great verandah of the house. And it would seem that the more important the ceremony the larger and the more numerous should be the pigs selected as victims. An attendant hands a burning brand to the chief, and he, stooping over the pig, singes a few of its hairs, and then addressing the pig as "Balli Bouin," and gently punching it behind the shoulder as we have already depicted him, he pours out a rapid flood of words. The substance of his address is a prayer to Balli Penyalong for guidance and knowledge as to the future course of the business in hand and an injunction to the soul of the pig to carry the prayer to Balli Penyalong.

Sometimes more than one chief will address one pig in this way, and then, as soon as these prayers are concluded, some follower plunges a spear into the heart or throat of the pig, and then rapidly opens its belly in the middle line, drags out the liver and lays it on a leaf or platter with the underside uppermost, and so carries it to the chief or chiefs. Then all the elderly men crowd round and consult as to the significance of the appearances presented by the underside of the liver. The various lobes and lobules are taken to represent the various districts concerned in the question on which light is desired, and according to the strength and intimacy of the connections between these lobes, the people of the districts represented are held to be bound in more or less lasting friendship; while spots and nodules in any part betoken future evils for the people of that part, a clean healthy liver means good fortune and happiness for all concerned. The omens thus obtained are held to be the answer vouchsafed by Balli Penyalong to the prayers which have been carried to him by the spirit of the pig.

If the answer obtained in this way from one pig is unsatisfactory they will often kill a second, and on important occasions even a third or fourth in order

<sup>1</sup> "They endeavoured to learn the future, especially in war, by consulting the entrails of victims."

to obtain a favourable answer. Unless they can thus obtain a favourable forecast they will not set out upon any undertaking of importance.

After any ceremony of this kind the body of the pig is usually divided among the people, and by them cooked and eaten without further ceremony. But we have seen that after the ceremony in preparation for an expedition the bodies of the young pigs, whose blood was scattered on the altar-post of Balli Penyalong, were fixed upon tall poles beside this altar-post and there left, and this seems to be the rule in ceremonies of this sort, though it is not clear whether the carcases are left there as offerings to the hawks or to Balli Penyalong, or because they are in some sense too holy to be used as food after being used in such rites.

Probably Kenyahs never give to the spirits in this way the whole body of a large pig, but only of quite small pigs, and in this they are probably influenced by economical considerations.

It may be said generally that Kenyahs do not kill domestic pigs simply and solely for the sake of food. The killing of a pig is always the occasion for, or occasioned by, some religious rite. It is true that on the arrival of honoured guests a pig is usually killed and given to them for food, but its spirit is then always charged with some message to Balli Penyalong. It is said that, when the pig's spirit comes to Balli Penyalong, he is offended if it brings no message from those who killed the pig, and he sends it back to carry off their souls.

On many other occasions also pigs are killed; thus, on returning from a successful attack on enemies a pig is usually killed for each family of the household, and a piece of its flesh is put up on a pole before the house; and during the severe illness of any person of high social standing, pigs are usually killed, and friendly chiefs may come from distant parts bringing with them pigs and fowls that they may sacrifice them, and so aid in restoring the sick man to health. On the death of a chief too a great feast is made, and many pigs are slaughtered, and their jaw bones are hung up on the tomb. A pig is sometimes used in the ceremony by which a newly-made peace is sealed between tribes hitherto at blood-feud, but a fowl is more commonly used.

The wild pig which abounds in the forest is hunted by the Kenyahs, and killed with spears when brought to bay by the dogs, and he is killed and eaten without ceremony or compunction by all classes.

The lower jaws of all wild pigs that are killed are cleaned and hung up together in the house, and it is believed that if these should be lost or in any way destroyed the dogs would cease to hunt.

#### *The Domestic Fowl.*

Every Kenyah household has a large number of fowls which compete eagerly with the pigs for the scraps of grain and garbage that fall from the house or paddy-stores.

The sitting hen and the young chickens are always kept in a basket in the house to prevent the chicks or eggs being eaten by pigs or dogs. But

beyond this very little attention is given to them. They are seldom killed for food, and their eggs too can hardly be reckoned as a regular article of food, though the people have no prejudice against eating them.

Fowls are killed on many of the occasions on which pigs are sacrificed, and as we have seen in the description of the ceremony at Tama Bulan's house their blood may be poured upon the altar-posts of Balli Penyalong, and it would seem that fowls and pigs are to some extent interchangeable equivalents for sacrificial purposes. Perhaps the most important occasion on which the fowl plays a part is the performance of the rite by which a blood-feud is finally wiped away. The following extract from the journal previously quoted describes an incident of this kind :—

" In the evening there was serious business on hand. Two chiefs, who some years ago were burned out of their homes in the Rejang district by the government, have settled themselves with their people in the Baram district. They had made a provisional peace with the Kayans some years ago, but the final ceremony was to be performed this evening. The two chiefs of the immigrants, who had remained hitherto in a remote part of the house, seated themselves at one side, and the Kayan chiefs at the other, and Tama Bulan and ourselves between the two parties. First, presents of iron were exchanged. In the old days costly presents of metal-work used to be given, but as this led sometimes to renewed disputes, the government has forbidden the giving of presents of a greater value than two dollars. So now old *parang* (sword) blades are given, and the other essential part of the present has been proportionately reduced from a full-grown fowl to a tiny chick. After much preliminary talking, two chicks were brought, and a bundle of old *parang*-blades which Tama Bulan, in his character of peace-maker, carries with him whenever he travels abroad. A chief of either party took a chick and a *parang* and presented them to the other. Then one led his men a little apart and began to rattle off an invocation beginning 'O sacred (Balli) chick,' and then snipped off its head with the *parang*, and with the bloody blade smeared the right arms of his followers as they crowded round him. The old fellow kept up the stream of words until every man was smeared, and then all stamped together on the floor and raised a great shout. Then the other party repeated the performance, and the peace being thus formally ratified we sat down to cement it still further by a friendly drinking bout."

Another ceremony in which the fowl plays a prominent part is that by which the wandering soul of a sick person is found and led back to his body by the medicine-man.

Such a performance is described in the following extract from the same journal :—

" In the evening we strolled along the great verandah and came upon a soul-catching performance in full swing. In the midst of a crowd of young men sitting in a semi-circle about a small lamp, stood Oyong Ian (a slave whose

merits have raised him to a very good position, but who is not by any means a professional medicine-man). He was chanting loudly with closed eyes, and he was supposed to be unconscious of all that was going on about him. The people talked and came and went, but he took no notice and went on with his chant, the men joining in with a deep-voiced chorus at the end of each phrase. An assistant physician handed to him a war-coat, shield, and *parang*, which he took with a distant air as of one in a half-dream. Then the patients were brought and set in a row on a mat, five children, the eldest a girl of about fourteen years, the youngest a baby in the arms of the anxious mother. One of the children was sick, that is to say, his soul had wandered away towards that other land whither it is destined to travel on the death of the body, and it was Oyong Ian's task to go forth in spirit, to find the wandering soul and to lead it back to the body of the sick child. The other children were not sick, and it seemed a little illogical to have their souls caught when there was no reason to suppose that they were straying, but then, if one must have the doctor to one child, to let him see the other children hardly increases the expense, and they may get some good from the treatment. Oyong took a short wand, and with it sprinkled sugared water on his *parang*, addressing his chant to the weapon and then he sprinkled each child. A young fowl was handed to him and he took it in his right hand and sang, 'O spirit (Balli) of this bird, ask Balli Penyalong to take away all sickness from us and to keep us from all harm.' Then, after waving the feebly protesting bird over the head of each child, chanting the while a formula in antique words whose meaning was unknown to the young man beside me, he snipped off its head and sprinkled its blood on the children. Then he took a second fowl and charged its spirit with prayers to both Penyalong and his wife for the boys and girls respectively, and his song described how his spirit had crossed a great river and had found the wandering souls and was leading them back. Six pieces of specially prepared string were produced by the assistant, and taking one in his right hand he put the finger-tips of that hand on the crown of the head of one of the children (at that moment the child's soul is supposed to pass back into his body through the spot touched); then, as the little fellow held out his arm very solemnly, he tied one of the strings round his right wrist. This process he repeated with each child, the baby resisting violently, but the others all very serious and deeply impressed. The assistant now snipped off the head of the second fowl and with the bloody *parang* Oyong Ian cut short the ends of the strings and smeared a little blood on the arm of each child. Thus the children's souls are tied into their bodies and are not likely to escape again for a long time to come. Lastly, a string was tied round Oyong's wrist by the assistant, a third fowl was killed, and its blood smeared on his arm, and the soul-catching was over. The children were led away and Oyong, still in his trance or dream state, strutted to and fro still chanting, until suddenly he staggered, opened his eyes widely, and then sat down beside me and lit a cigarette in the most every-day sort of way, saying, 'White man's medicine is good, but

Kenyah medicine is good too'; and there was no trace of anything but the most transparent frankness on his honest face."

It will be seen from this account that the fowl, like the pig, is used in many cases as a messenger sent by man to the Supreme Spirit. In most cases when a fowl is slaughtered in the course of a ceremony it is first waved over the heads of the people taking part in it, and its blood is afterwards sprinkled upon them.

In the blood-brotherhood ceremony, when each of the two men drinks or smokes in a cigarette a little of the other's blood drawn with a bamboo-knife, a fowl is in many cases waved over them and then killed, and occasionally a pig also is killed. In such a case the man who has killed the fowl will carry its carcase to the door of the house and there will wave towards the heavens a frayed stick moistened with its blood and announce the facts of the ceremony to Balli Penyalong. So that here again the fowl seems to play the part of a messenger. The carcase and the bloody stick are afterwards put up together on a tall pole before the house. After going through this ceremony a man is safe from all the members of the household to which his blood-brother belongs, and in the case of two chiefs all the members of either household are bound to those of the other by a sacred tie.

Fowls' eggs are sometimes put up on cleft poles as sacrifices. In one instance when we were engaged in fishing a lake with a large party in boats we came upon a row of eight poles stuck upright at the edge of the lake, each cleft at its upper end and holding a fowl's egg. These had just been put there by the crew of one of the canoes as an offering to the crocodiles, which were regarded as the most influential of the powers of the lake and able to ensure us good sport.

In such cases the eggs are probably economical substitutes for fowls, as seems to be indicated by the following facts:—When Kenyah boys enter a strange branch of the river for the first time, they go, each one taking a fowl's egg in his hand, into the jungle with some old man, who takes the eggs, puts them into the cleft ends of poles fixed upright in the earth, and thus addresses all the omen-birds collectively, "Don't let any harm happen to these children who are coming for the first time to this river; they give you these eggs." And sometimes instead of eggs the feathers of a fowl are used, and both the eggs and feathers would seem to be substituted for fowls as being good enough in the case of mere children performing a minor rite.

When the belly of a fowl is opened there are prominent two curved portions of the gut. The state of these is examined in some cases before the planting of paddy, and sometimes before attempting to catch the soul of a sick man. If the parts are much curved it is a good omen; if straight or but slightly curved it is a bad omen.

*The Crocodile.*

Like all other races of Sarawak, the Kenyahs regard the crocodiles that infest their rivers as more or less friendly creatures. They fear the crocodile and do not like to mention it by name, especially if one be in sight, and refer to it as "the old grandfather." But the fear is rather a superstitious fear than the fear of being seized by the beast. They regard those of their own neighbourhood as more especially friendly, in spite of the fact that members of their households are occasionally taken by crocodiles, either while standing incautiously on the bank of the river or while floating quietly at evening time in a small canoe. When this happens it is believed either that the person taken has in some way offended or injured one or all of the crocodiles, or that he has been taken by a stranger crocodile that has come from a distant part of the river and therefore did not share in the friendly understanding usually subsisting between the people and the local crocodiles. But in any case it is considered that the crocodiles have committed an unjustifiable aggression and set up a blood-feud which can only be abolished by the slaying of one or more of the aggressors. Now it is the habit of the crocodile to hold the body of his victim for several days before devouring it, and to drag it for this purpose into some muddy creek opening into the main river. A party is therefore organized to search all the neighbouring creeks, and the first measure taken is to prevent the guilty crocodile escaping to some other part of the river. To achieve this they take long poles, frayed with many cuts, and set them up on the river bank at some distance above and below the scene of the crime and at the mouths of all the neighbouring creeks and streamlets; and they kill fowls and pray that the guilty crocodile may be prevented from passing the spots thus marked. They then search the creeks, and if they find the criminal with the body of his victim they kill him, and the feud is at an end. But, if they fail to find him thus, they go out on the part of the river included between their charmed poles, and, with their spears tied to long poles, prod all the bed of this part of the river, and thus generally succeed in killing one or more crocodiles. They then usually search its entrails for the bones and hair of the victim so as to make sure that they have caught the offending beast. But even if they do not obtain conclusive evidence of this kind they seem to feel that justice is satisfied and that the beast killed is probably the guilty one.

Except in the meting out of a just vengeance in this way, no Kenyah will kill a crocodile, and they will not eat its flesh under any circumstances. But there is no evidence to show that they regard themselves as related by blood or descent to the crocodiles or that their ancestors ever did so.

When Kenyahs go on a journey into strange rivers or to the lower part of the main river they fear the crocodiles of these strange waters, because they are unknown to them, and any one of them might easily be mistaken by the crocodiles for someone who has done them an injury. Some Kenyahs tie the red leaves of the Droeicina below the prow of their boat whenever they go far from home, believing that this protects them from all danger of attack by crocodiles.

*The Dog.*

In all Kenyah houses are large numbers of dogs, which vary a good deal in size and colour, but roughly resemble large, mongrel-bred, smooth-haired terriers. Each family owns several, and they are fed with rice usually in the evening, but seem to be always hungry. The best of them are used for hunting, but besides these there is always a number of quite useless, ill-fed, ill-tempered curs, for no Kenyah dare kill a dog, however much he may wish to be rid of it. Still less, of course, will he eat the flesh of a dog. The dogs prowl about, in and around the house, much as they please, and are not treated with any particular respect, but are rarely kicked or struck. When a dog intrudes where he is not wanted it is usual to click with the tongue at him, and this is usually enough to make him pass on.

One young Kenyah chief, on being questioned, said that the reason they will not kill dogs is that they are like children and eat and sleep together with men in the same house, and he added that if a man should kill a dog he would go mad.

If a dog dies in the house the men push the carcase out of the house and into the river with long poles and will on no account touch it with their hands. The spot on the floor on which the dog died is fenced round with mats for some few days in order to prevent the children walking over it.

It is usual for the Kenyah men to have one or more designs tattooed on their forearms and shoulders. Among the commonest of these designs are those known as the scorpion, the prawn, and the dog. They seem to be conventionalised derivatives from these animal forms. It is said that the dog's head design was formerly much more in fashion than it is at the present time.

*Deer and Cattle.*

Kenyahs of the upper class will not kill or eat deer and wild cattle. They believe that if they should eat their flesh they would vomit violently and spit out blood. They have no domestic cattle, and the buffalo does not occur in their districts. Lower-class Kenyahs and slaves, taken as war-captives from other tribes, may eat deer and horned cattle, but they must take the flesh some little distance from the house to cook it. A woman who is pregnant, or for any other reason is in the hands of a physician, has to observe the restrictions with regard to deer and cattle more strictly than other people, and she will not touch or allow to be brought near her any article of leather or horn.

The war-coats of the men are often made of goat or deer skin, and any man may wear such a war-coat. But when a man has a young son he is particularly careful to avoid contact with any part of a deer lest through such contact he should transmit to his son in any degree the timidity of the deer. On one occasion when we had killed a deer, a Kenyah chief resolutely refused to allow its skin to be carried in his boat, alleging the above reason.

The cry or bark of the deer (*Cervulus muntjac*) is a warning of danger, and the seeing or hearing of the *plandok* (*Tragulus napu*) has a like significance.

*The Tiger-Cat.*

The only large species of the *Felidae* that occurs in Borneo is the tiger-cat (*Felis nebulosa*). Kenyahs will not eat it as men of some tribes do, but will kill it, and they fashion its handsome spotted skin into war-coats. Such coats are worn only by men who have been on the warpath. The canine-teeth of the tiger-cat are much prized as ornaments; they are worn thrust through holes in the upper part of the shell of the ear, but only by full-grown men. *Kulch*, the name of this beast, is sometimes given to a boy.

The true tiger does not now occur in Borneo, and it is doubtful whether it ever was a native of the island. Nevertheless the Kenyahs know it by name (*Linjau*) and by reputation, and a few skins are in the possession of chiefs. No ordinary man but only a distinguished and elderly chief will venture to touch such a skin, much less wear it as a war-coat. These skins have been brought from other lands by Malay traders, and it is probable that whatever knowledge of the tiger the Kenyahs possess has come from the same source.

A chief will sometimes name his son *Linjau*, that is, the Tiger.

A carnivore (*Arctogale leucotis*) allied to the civet cat warns of danger when seen or heard.

*Other Animals.*

There is a certain large lizard (*varanus*) that is eaten freely by other tribes, but Kenyahs may not eat it, though they will kill it.

They regard the seeing of any snake as an unfavourable omen and will not kill any snake gratuitously.

Kenyahs, like all, or almost all, the other natives of Borneo, are more or less afraid of the Maias (the orang-utan) and of the long-nosed monkey, and will not look one in the face or laugh at one.

In one Kenyah house a fantastic figure of the gibbon is carved on the ends of all the main cross-beams of the house, and the chief says that this has been their custom for many generations. He tells us that when these beams are being put up it is the custom to kill a pig and divide its flesh among the men who are working, and no woman is allowed to come into the house until this has been done. None of his people will kill a gibbon, though other Kenyahs will kill and probably eat it. They claim that he helps them as a friend, and the carvings on the beams seem to symbolize his supporting of the house.

In other parts of the same house are carvings of *Semnopithecus Hosei*, but the old chief regards these as much less important and as recent innovations.

We do not know of any other animals to which especial respect or attention is paid by the Kenyahs, and we will now describe the corresponding customs of the Kayans.

## THE KAYANS.

Like the Kenyahs, the Kayans seem to have come from the east about 150 years ago, probably a little later than the Kenyahs, and are now settled in

large villages, consisting usually of three or four long houses, on the banks of the Baram about the middle of its course. In the state of their culture and the character of their customs the Kayans closely resemble the Kenyahs. Individually they are less attractive than the Kenyahs and the difference may be described in one word,—there is in the Kenyah character something Hellenic that is wanting in the Kayans. Since the customs of the Kayans in regard to animals are so similar to those of the Kenyahs it will only be necessary to mention those points in which they differ and to bring out some differences in the mental attitude of the Kayans.

Kayans like Kenyahs worship the Supreme Being under the name Laki Tenangan, *i.e.*, Grandfather Tenangan, and the women pray to his wife Do Tenangan. They also reverence a number of departmental deities. Thus there are four gods of life, Buring Katingai, Laki Ju Urip, Laki Makatan Urip, Laki Kalisai Urip, a harvest god Anyi Lawang and Abong Do his wife, a fire-god Laki Pesong, a spirit of madness Balanan, a spirit who causes fear Toh Kiho, the creator of the world Laki Kalira Murei, a god of the waters Orai Uka, and lastly, Laki Jup Urip the deity or spirit who ferries souls across the river of death to Apo Lagan, the Kayan Hades.

The white-headed hawk (Balli Flaki) of the Kenyahs has its equivalent among the Kayans in the large dark-brown hawk, which they call Laki Neho. But as it is not possible to distinguish these two kinds of hawks when seen flying at some distance, they address and accept all large hawks seen in the distance as Laki Neho.

The functions and powers of Laki Neho seem to be almost identical with those of Balli Flaki. He is a giver of omens and a bringer of messages from Laki Tenangan. The following notes of a conversation with an intelligent Kayan chief will give some idea of his attitude towards Laki Neho. It must be remembered that these people have no priesthood and no dogmatic theologians to define and formulate beliefs, so that their ideas as to the nature of their gods and their abodes and powers are, though perhaps more concrete, at least as various in the minds of different individuals as are the corresponding ideas among the average adherents of more highly developed forms of religion; and perhaps no two men will agree exactly on these matters, and any one man will freely contradict his own statements.

Laki Tenangan is an old man with long white hair who speaks Kayan and has a wife, Do Tenangan. They sometimes see him in dreams, and if fortunate they then see his face, but if unlucky they see his back only. In olden times powerful men sometimes spoke with him, but now this never occurs. He dwells in a house far away. Laki Neho also has a house that is covered with palm leaves and frayed sticks. It is in a tree top, yet it is beside a river, and has a landing place before it like every Kayan house. This house is sometimes seen in dreams. It is not so far away as the house of Laki Tenangan. At first our informant said that help is asked directly of Laki Neho, but when pressed he said that Laki Neho

may carry the message to Laki Tenangan. Some things Laki Neho does of his own will and power, for example, if a branch were likely to fall on a Kayan boat he would prevent it, for Laki Tenangan long ago taught him how to do such things. When a man is sick Kayans appeal to Laki Neho, but if he does not make the patient well, they then appeal to Laki Tenangan directly, killing a pig whose spirit goes first to the house of Laki Neho, and then on to the more distant house of Laki Tenangan. For they believe that in such a case the patient has somehow offended Laki Neho by disregarding or misreading his omens. A man suffering from chronic disease may himself pray to Laki Tenangan. He lights a fire and kills a fowl and perhaps a pig also, and calls upon Laki Neho to be his witness and messenger. He holds an egg in one hand and says, "This is for you to eat, carry my message direct to Laki Tenangan that I may get well and live and bring up my children, who shall be taught my occupations and the true customs"; and he will say to Laki Neho, "You I put on the top of my head, when you are with me men look up to me as to a high cliff." The fire is lighted to make Laki Neho warm and energetic.

It will be seen from the above account that the Kayans have formed a concept of the power of the hawks in general, and have given it a semi-anthropomorphic character, and we shall see below that the Sea-Dayaks have carried this process still further.

#### *Crocodiles.*

The Kayan's attitude towards the crocodile is practically the same as the Kenyah's. We append the following notes of a conversation with a young Kayan chief, Usong, and his cousin Wan:—There are but very few Kayans who will kill a crocodile except in revenge. But if one of their people has been taken by a crocodile, they go out together to kill the criminal, and they begin by saying, "Don't run away, you've got to be killed, why don't you come to the surface? You won't come out on the land because you have done wrong and are afraid." After this he will perhaps come on to the land, and if he does not he will at least float to the surface of the water and is then killed with spears. In olden days Kayans used to make a crocodile of clay and ask it to drive away evil spirits, but now this is not done. A crocodile may become a man just like themselves. Sometimes a man dreams that a crocodile calls him to become his blood-brother and after they have gone through the regular ceremony and exchanged names (in the dream) the man is quite safe from crocodiles. Usong's uncle has in this way become blood-brother to a crocodile and is now called "Baiya" (the generic name for the crocodile) while some crocodile unknown is called Jok, and Usong considers himself the nephew of the crocodile Jok. Usong's father has also become blood-brother to a crocodile, and Usong calls himself a son of this particular unknown crocodile. Sometimes he asks these two, his uncle- and his father-crocodiles, to give him a pig when he is out hunting, and once they did give him one. After relating this Usong added, "But who knows if this be true?"

Wan's great-great-grandfather became blood-brother to a crocodile, and was

called "Klieng Baiya." Wan has several times met this crocodile in dreams. Thus in one dream he fell into the river when there were many crocodiles about. He climbed on to the head of one which said to him, "Don't be afraid," and carried him to the bank. Wan's father had charms given him by a crocodile and would not on any account kill one, and Wan clearly regards himself as being intimately related to crocodiles in general.

The Kayans regard the pig and the fowl in much the same way as the Kenyahs do, and put them to just the same uses. Their beliefs and customs with regard to deer, horned cattle, dogs and the tiger-cat, are similar to those of the Kenyahs save that they will not kill the last of these. They are perhaps more strict in the avoidance of deer and cattle. One old chief who had been ailing for a long time hesitated to enter the Resident's house because he saw a pair of horns hanging up there. When he entered he asked for a piece of iron and on returning home he killed a fowl and a pig, and submitted to the process of having his soul caught by a medicine-man lest it should have remained in the dangerous neighbourhood of the horns.

Like the Kenyahs the Kayans entertain a superstitious dread of the Maias and the long-nosed monkey, but the *Dok* (*Macacus nemestrinus*), the coco-nut monkey of the Malay States, has special relations to them. It is very common in their district and they will kill it only when it is stealing their rice-crop, and they will never eat it as other peoples do. There is a somewhat uncertain belief that it is a blood-relative, and the following myth is told to account for this:—A Kayan woman of high class was reaping paddy with her daughter. Now it is against custom to eat any of the rice during reaping, and when the mother went away for a short time leaving the girl at work she told her on no account to eat any of the rice. But no sooner was the mother gone than the girl began to husk some paddy and nibble at it. Then at once her body began to itch and hair began to grow on her arms like the hair of a *Dok*. Soon the mother returned and the girl said, "Why am I itching so?" and the mother answered, "You have done some wicked thing, you have eaten some rice." Then hair grew all over her body except her head and face, and the mother said, "Ah, this is what I feared, now you must go into the jungle and eat only what has been planted by human hands." So the girl went into the jungle and her head became like a *Dok*'s and she ceased to be able to speak.

The *Dok* does not help them in any way but only spoils their crops.

A very popular dance is the *Dok* dance, in which a man imitates very cleverly the behaviour of the *Dok*. It is a very ludicrous performance, and excites boisterous mirth. They say it is done merely in fun.

In one Kayan house the ends of all the main cross-beams that support the roof are ornamented with fretwork designs which are clearly animal derivatives and apparently all of the same animal. Its form suggests a crocodile, and some of the men agreed that that was its meaning, while others asserted that it was a dog. It was doubtless originally one or other of these, but

has now become a conventional design merely, and its true origin has been forgotten (cf. Plate XV, 1).

Neither Kayans nor Kenyahs make much use of snakes of any kind, but there is one snake with red head and tail which, when they see it in the course of a journey, they must kill, else harm will befall them. And again if they see a certain snake just as they are about to enter a strange river or a strange village they will stop and light a fire on the bank in order to communicate with Laki Neho. Kayans will not eat any species of turtle or tortoise.

#### KALAMANTANS.

The Kalamantans is the name by which we propose to denote the people of the scattered communities that seem to be descendants of the tribe that inhabited the interior of the Baram district at the time when the Kenyahs and Kayans first invaded it from the eastward. Their general modes of life and thought are very similar to those of the Kayans and Kenyahs, especially those of the latter, but they present a greater variety of customs than either of those tribes, owing no doubt to their widely scattered distribution. We will describe the main points of interest in which their relations to the animals differ from those of the Kenyahs and Kayans.

The following notes of a conversation with the Orang Kaya Tummonggong, the distinguished chief of the Long Pata people (one of the many groups of Kalamantans), show that these people regard the hawk in much the same way as the Kenyahs do:—The hawk, "Balli Flaki," is the messenger of "Balli Utong" the Supreme Being. When a party is about to set out on any expedition, they explain their intentions to Balli Flaki and then observe the movements of the hawks. If a hawk circles round over their heads some of the party will fall sick on the journey and probably die. If the hawk flies to the right when near at hand it is a good omen, but if it flies to the right when at a distance or to the left, whether near or far, that is a bad omen. The people then light a fire and entreat the hawk to give a more favourable sign, and if it persists in going to the left they give up the expedition. If while the omens are being read the hawk flaps his wings, or screams, or swoops down and settles on a tree the omens are bad. But if it swoops down and up again that is good. If two or three hawks are visible at the same time, and especially if they all fly to the right that is very good, but if many are visible and especially if they fly off in different directions that is very bad, for it means that the enemy will scatter the attacking force. If the hawk should capture a small bird while they are watching it, that means that they will be made captives if they persist in their undertaking. The hawk is not claimed as a relative by Kalamantans. They take omens from various other birds in matters of minor importance.

Kalamantans use the domestic pig and fowl as sacrificial animals just as the Kenyahs and Kayans do, and they have the same superstitious dread of

killing a dog. One group of them, the Malanaus, use a dog in taking a very solemn oath, and sometimes the dog is killed in the course of this ceremony. Or instead of the dog being killed, its tail may be cut off, and the man taking the oath licks the blood from the stump, and this is considered a most binding and solemn form of oath. The ceremony is spoken of as "makan asu," i.e., "the eating of the dog."

Most Kalamantans will kill and eat deer and cattle freely. But there are exceptions to this rule. Thus Damong, the chief of a Malanau household, together with all his people, will not kill or eat the deer *Cervulus muntjac*, alleging that an ancestor had become a deer of this kind, and that, since they cannot distinguish this incarnation of his ancestor from other deer, they must abstain from killing all deer of this species. We know of one instance in which one of these people refused to use again his cooking-pot which a Malay had borrowed and used for cooking the flesh of this deer. This superstition is still rigidly adhered to, although these people have been converted to Islam of recent years.

On one occasion another chief resolutely refused to proceed on a journey through the jungle when a mouse deer (*Plandok*) crossed his path, and he will not eat this deer at any time.<sup>1</sup>

The people of Miri, who also are Mohammedan Malanaus, claim to be related to the large deer (*Cervus equinus*) and some of them to the muntjac deer also. Now these people live in a country in which deer of all kinds abound, and they always make a clearing in the jungle around a tomb. On such a clearing grass grows up rapidly, and so the spot becomes attractive to deer as a grazing ground; and it seems not improbable that it is through frequently seeing deer about the tombs that the people have come to entertain the belief that their dead relatives become deer or that they are in some other way closely related to the deer.

The Bakongs, another group of Malanaus, hold a similar belief with regard to the bear-cat (*Artictis*) and the various species of *Paradoxurus*, and in this case the origin of the belief is admitted by them to be the fact that on going to their graveyards they often see one of these beasts coming out of a tomb. These tombs are roughly constructed wooden coffins raised a few feet only from the ground, and it is probable that these carnivores make their way into them in the first place to devour the corpse, and that they then make use of them as lairs.

The relations of the Kalamantans to the crocodiles seem to be more intimate than those of other tribes. One group, the Long Patas, claim the crocodile as a relative. The story goes that a certain man named Silau became a crocodile. First he became covered with itch, and he scratched himself till he bled and became rough all over. Then his feet began to look like a crocodile's tail, and as the change crept up from his feet to his body he called out to his relatives that he was

<sup>1</sup> Of the Romans it is said: "When a fox, a wolf, a serpent, a horse, a dog, or any other kind of quadruped ran across a person's path or appeared in an unusual place, it formed an augury."

becoming a crocodile, and made them swear that they would never kill any crocodile. Many of the people in olden days knew that Silau became a crocodile because they saw him at times and spoke to him, and his teeth and tongue were always like those of a man. Many stories are told of his meeting with people by the river-side. On one occasion a man was roasting a pig on the river-bank, and when he left it for a moment Silau took it and divided it among the other crocodiles, who greatly enjoyed it. Silau then arranged with them that he would give a sign to his human relatives by which the crocodiles might always be able to recognize them when travelling on the rivers. He told his human friends that they must tie leaves of the Dracena below the bows of their boats, and this they always do when they go far from home, so that the crocodiles may recognise them and so abstain from attacking them.

If a man of the Long Patas is taken by a crocodile they attribute this to the fact that they have intermarried to some extent with Kayans. When they come upon a crocodile lying on the river-bank they say, "Be easy, grandfather, don't mind us, you are one of us." Some of the Kalamantans will not even eat anything that has been cooked in a vessel previously used for cooking crocodile's flesh, and it is said that if a man should do so unwittingly his body would become covered with sores.

If a crocodile is seen on their left hand by Long Patas on a war expedition that is a bad omen, but if on their right hand that is the best possible omen.

The Orang Kaya Tummonggong tells us that in the olden times the crocodiles used to speak to his people, warning them of danger, but that now they never speak, and he supposes that their silence is due to the fact that his people have intermarried with other tribes. The Long Patas frequently carve a crocodile's head as the figure-head for a war canoe.

The Batu Blah people (Kalamantans) on returning from the war-path make a huge effigy of a crocodile with cooked rice, and put fowl's eggs in its head for eyes and bananas for teeth, and cover it with scales made from the stem of the banana plant. When all is ready it is transfixated with a wooden spear and the chief cuts off its head with a wooden sword. Then pigs and fowls are slaughtered and cooked and eaten with the rice from the rice-crocodile, the chiefs eating the head and the common people the body. The chief of these people could give us no explanation of the meaning of this ceremony ; he merely says they do it because it is "adat" (custom).

One community of Kalamantans, the Lelak people, lived recently on the banks of a lake much infested with crocodiles. Their chief had the reputation of being able to induce them to leave the lake. To achieve this he would stand in his boat waving a bundle of charms, which included among other things teeth of the real tiger and boars' tusks, and then address the crocodiles politely in their own language. He would then allow his boat to float out of the lake into the river, and the crocodiles would follow him and pass on down the river.

Many, probably all, Kalamantans put up wooden images of the crocodile

before their houses, and many of them carve the prow of their war-canoes into the form of a crocodile's head with gaping jaws.

#### THE PUNANS.

We regard the Punans as being in all probability closely allied on the one hand to the group of tribes which we have called the Kalamantans and to the Kenyahs on the other, but their mode of life and general customs are so different from those of the other peoples that we describe them separately here. They are a nomadic people who build no permanent houses of any kind and do not cultivate rice, and they live by hunting and gathering of wild fruits and jungle produce such as camphor, which they exchange for rice, salt, and iron with the people of other tribes. Since their mode of life is so very much more primitive than that of the other tribes, we hoped that their relations to the animals might throw light upon the significance of many customs that we have described above. In this respect what we have been able to learn of the Punan beliefs and customs is disappointing, but it must be confessed that our failure to discover any particular belief or custom is, in their case, of far less value as negative evidence than in the case of any of the other tribes, because the Punans are very timid and reserved people; and we have little doubt that much remains to be learnt of their customs and beliefs. We hope to be able to complete our account of them at some future date.

Punans reverence the Supreme Being as the Kenyahs do, and they address him as Balli Lutong. They have similar ideas with regard to the soul of man and its behaviour and destination after the death of the body, and like all the other peoples they believe themselves to be surrounded by spirits which may be hurtful to them. Their medicine men are sometimes called in by people of other tribes, and enjoy a high reputation.

The Punans make use of all the omen-birds that are used by the Kenyahs, and they regard them as in some degree sacred, and not to be killed and eaten. They seem to read the omens in much the same way as the Kenyahs do, but they are not so constant in their cult of the omen-birds, and Punans of different districts differ a good deal from one another in this respect. In fact, it is doubtful whether those that have mixed least with the other peoples pay any attention to the omen-birds, and it seems not unlikely that the cult of the omen-birds is in process of being adopted by them.

With the exception of these birds there is probably no wild animal of the jungle that the Punans do not kill and eat. They refuse to eat the domestic pig, but this, they say, is because they know nothing of it, it is strange to them. Having no domestic pigs and fowls, they of course do not sacrifice them to their gods, nor do they seem to practise the rite of sacrifice in any form.

They give the names of various animals to their children, and use these names in the ordinary way.

The crocodile seems to be regarded as a god by the Punans—they speak of it as Balli Penyalong. (This, as we have already said, is the name of the Supreme Spirit of the Kenyahs.) They sometimes make a wooden image of it, and hang it before the leaf shelter or hut in which they may be living at any time, and if one of their party should fall ill they hang the blossom of the betelnut tree on the figure, and the medicine man addresses it when he seeks to call back the wandering soul of his patient.

Punans certainly ascribe significance to the behaviour of a few animals other than those observed by the other peoples. Thus if they see a lizard of any kind upon a branch before the shelter in which they are encamped, and especially if it utters its note, they regard this as a sign that enemies are near.

#### THE SEA DAYAKS OR IBANS.

These people, who have been a good deal confused with the Land Dayaks (whom we regard as belonging to the group of scattered communities that we have classed together as Kalamantans), we propose to call Ibans in order to avoid this confusion. This name, which means the immigrants, has been given them by the Kayans because they have migrated from the Saribas and Lemanak rivers in the Rejang, and they have adopted it for themselves.<sup>1</sup>

They inhabited a small district only at the time of the advent of Sir James Brooke, but since that time they have spread, under the protection of the Sarawak government, over a much wider area, and have made settlements in most of the main rivers of Sarawak. We regard them, for reasons which it would take too long to give here, as people of Malay stock who, like the Malays, have come to Borneo from the west. They have had much more intercourse with Malays, Chinamen, and all the other peoples of the country than have the tribes with which we have hitherto dealt, and they are a very imitative people, readily adopting the fashions, customs, and beliefs of those with whom their roving natures bring them into relations of any kind. The result is that their beliefs and customs are much mixed, and present unusually great inconsistencies and extravagances. Since, then, we regard the customs of the Ibans as of less anthropological value than those of the tribes with which we have dealt above, and since various writers have already described many of them at length, we shall describe in this paper only some features of their animal superstitions that seem to us especially interesting.

The Ibans do not seem to have any conception that corresponds closely to the Supreme Spirit of the races with which we have already dealt. Archdeacon Perham<sup>2</sup> has given an account of the Petara of these people, showing how it is a conception of one god having very many manifestations and functions, each special function being conceived vaguely as an anthropomorphic deity. He has described

<sup>1</sup> We believe that Dr. A. C. Haddon also proposes to use the name Iban for these people.

<sup>2</sup> *Journ. of Straits Asiatic Society*, Nos. 8, 10, and 14.

also the mythical warrior-hero and demi-god Klieng, and the god of war, Singalang Burong. As Archdeacon Perham has said, this last deity has a material animal form, namely, the white-headed hawk, which is the Balli Flaki of the Kenyahs, and plays a somewhat similar part in their lives. But Singalang Burong is decidedly more anthropomorphic than Balli Flaki and is probably generally conceived as a single being of human form living in a house such as the Ibans themselves inhabit; whereas Balli Flaki, even if sometimes conceived in the singular as the great Balli Flaki, is very bird-like. We have seen that the Kayans describe their hawk-god, Laki Neho, as dwelling in a house, which, though in the top of a tree, has a landing-stage before it on the river-bank. In the case of the Kayans the conception is only half-way on the road to a full anthropomorph, whereas with the Ibans the change has been completed and the hawk-god is completely anthropomorphic. And corresponding with this increased importance and definition of the anthropomorphic hawk-god, we find that for the Ibans the virtue has departed out of the individual hawks and they are no longer consulted for omens, for they say that Singalang Burong never leaves his house, and therefore they do not take omens from the hawks when going on the warpath. Nevertheless, he is the chief or ruler over all the other omen-birds, who are merely his messengers. He thus seems to have come to occupy almost the position of Balli Penyalong among the Kenyahs. The following notes are the statements made upon this subject by a very intelligent Iban of the Undup district:—Once a year they make a big feast for Singalang Burong and sing for about twelve hours, calling him and Klieng and all the Petara to the feast. (This is the ceremony known as Gawai Burong. It is a most tedious and monotonous performance after the first few hours.) Singalang Burong in older days used to come to these feasts in person as a man just like an Iban in appearance and behaviour. At the end of the feast he would go out, take off his coat, and fly away in the form of the white-headed hawk. Now they are not sure that he comes to their feast, because they never see him. Singalang Burong is greater than Klieng, although it is Klieng that gives them heads in war. Singalang Burong married an Iban woman, Kachimundai Lanai Pantak Girak, and he gave all his daughters in marriage to the omen-birds. Dara Inchin Tembaga Monghok Chelabok married Katupong (*Sasia abnormis*), Dara Selaka Ulih Nujut married Manbuus (*Carkurentis*), Pingai Tuai Nadai Mertas Indu Moa Puchang Penabas married Bragai (*Harpactes*), Indu Langgu Katungsong Ngumbai Dayang Katupang Bungah Nketai married Papan (*Harpactes diardi*), and lastly Indu Bentok Tinchin Mas Ndu Pungai Lelatan Pulas married Kotok (*Lepocestes*). He had also one son, Agi Melieng, etc., who married the daughter of Pulang Gana, the god of agriculture, her name being Indu Kachanggut Rumput Melieng Capian.

It was amusing and instructive to hear this Iban rattle off these enormous names without any hesitation, while another Iban sitting beside him guaranteed their accuracy.

In the olden days, it is said, there were only thirty-three individuals of each

kind of omen-bird (including Singalang Burong). But although these thirty-three of each kind still exist, there are many others which cannot be certainly distinguished from them, and these do not give true omens. It would be quite impossible to kill any one of these thirty-three true representatives of each kind, however much a man might try.

Nevertheless, if an Iban kills an omen-bird by mistake, he wraps it in a piece of cloth and buries it carefully in the earth, and with it he buries rice and flesh and money, entreating it not to be vexed and to forgive him because it was all an accident. He then goes home and will speak to no one on the way, and stays in the house for the rest of that day at least.

The Ibans read omens not only from the birds mentioned above as the sons-in-law of Singalang Burong, but also from some other animals. And it is interesting to note that they have made a verb from the substantive "burong," a bird, namely, "beburong," to bird, *i.e.*, to take omens of any kind, whether from bird or beast. An excellent account of the part played by omens in the life of the Ibans has been given by Archdeacon Perham in the paper referred to above, and we have nothing further to add to that account.

The hornbill must be included among the sacred birds of the Iban, although it does not give omens. On the occasion of making peace between hostile tribes, the Ibans sometimes make a large wooden image of the hornbill and hang great numbers of cigarettes upon it, and these are taken from it during the ceremony and smoked by all the men taking part in it. On the occasion of the great peace-making at Baram in March, 1899, at which thousands of Kenyahs, Kayans, Kalamantans, and Ibans were present, the Ibans made an elaborate image of the hornbill some nine feet in height and hung upon it many thousands of cigarettes, and these were smoked by the men of the different tribes with apparently full understanding of the value of the act.

A special deity, Pulang Gana, presides over the rice-culture of the Ibans, but the crocodile also is intimately concerned with their rice-culture. The following account was given us by an intelligent Iban from the Batang Lumar:—

Klieng first advised the Ibans to make friends with Pulang Gana, who is a Petara and the grandfather ("aki") of paddy. Pulang Gana first taught them to plant paddy and instructed them in the following rites:

On going to a new district Ibans always make a life-size image of a crocodile in clay on the land chosen for the paddy-farm. The image is made chiefly by some elderly man of good repute and noted for skilful farming. Then for seven days the house is "mali," *i.e.*, under special restrictions—no one may enter the house or do anything in it except eat and sleep. At the end of the seven days they go to see the clay crocodile and give it cloth and food and rice-spirit and kill a fowl and a pig before it. The ground round about the image is kept carefully cleared and is held sacred for the next three years, and if this be not done there will be poor crops on the other farms. When the rites are duly performed this clay crocodile

destroys all the pests which eat the rice. If in a district where Ibans have been long settled the farm-pests become very noxious, the people pass three days "mali" and then make a tiny boat of bark, which they call "utap" (a shield). They then catch one specimen of each kind of pest—one sparrow, one grasshopper, etc.—and put them into the small boat together with all they need for food and set the boat free to float away down the river. If this does not drive away the pests they then resort to the more thorough and certainly effectual process of making the clay crocodile.

Many Ibans claim the live crocodile as a relative, and like almost all the other peoples will not eat the flesh of crocodiles nor kill them, save in revenge when a crocodile has taken one of their household. They say that the spirit of the crocodile sometimes becomes a man just like an Iban, but better and more powerful in every way, and sometimes he is met and spoken with in this form.

Another reason given for their fear of killing crocodiles is that Ribai, the river-god, sometimes becomes a crocodile; and he may become also a tiger or a bear. Klieng too, may become any one of five beasts, namely, the python, the maias, the crocodile, the bear, or the tiger, and it is for this reason that Ibans will not kill these animals. For if a man should kill one which was really either Ribai or Klieng he would go mad.

The Ibans are by nature a less serious-minded and less religious people than the Kenyahs and Kayans, and they have a greater variety of myths and extravagant superstitions; nevertheless, they use the fowl and the pig as sacrificial animals in much the same way as the other tribes. They eat the fowl and both the wild and domestic pig freely, except in so far as they are restrained by somewhat rigid notions of economy in such matters. The fowl plays a larger part than the pig in their religious practices, and its heart is sometimes consulted for omens. Ibans will kill and eat all kinds of deer, but there are exceptions to this rule. The deer are of some slight value to them as omen-givers. Horned cattle they will kill and eat, but they are not accustomed to the flesh of them, and most do not relish it.

Ibans have numerous animal fables that remind one strongly of Esop's fables and the Brer Rabbit stories of the Africans. In these "Tekora" the land-tortoise and "pelandok," the tiny mouse-deer, figure largely as cunning and unprincipled thieves and vagabonds that turn the laugh always against the bigger animals and man.

#### *The "Nyarong" or Spirit-helper.*

An important institution among the Ibans, which occurs but in rare instances among the other peoples, is the "Nyarong" or Spirit-helper. The "Nyarong" is one of the very few topics in regard to which the Ibans display any reluctance to speak freely. So great is their reserve in this connection that one of us lived for fourteen years on friendly terms with Ibans of various districts without ascertaining the meaning of the word "Nyarong" or suspecting the great importance of the part played by it in the lives of many of these people. It

seems to be usually the spirit of some ancestor or dead relative, but not always so, and it is not clear that it is always conceived as the spirit of a deceased human being. This spirit becomes the special protector of some individual Iban, to whom in a dream he manifests himself, in the first place in human form, and announces that he will be his "Nyarong," and apparently he may or may not inform the dreamer in what form he will appear in future. On the day after such a dream the Iban wanders through the jungle looking for signs by which he may recognize his "Nyarong," and if an animal behaves in a manner at all unusual, if a startled deer stops a moment to gaze at him before bounding away, if a gibbon gambols about persistently in the trees near him, if he comes upon a bright quartz-crystal or a strangely contorted root or creeper, that animal or object is for him full of a mysterious significance and is the abode of his "Nyarong." Sometimes the "Nyarong" then assumes the form of an Iban and speaks with him, promising all kinds of help and good fortune. If this occurs the Iban usually faints away, and when he comes to himself again the "Nyarong" will have disappeared. Or, again, a man may be told in his dream that if he will go into the jungle he will meet his "Nyarong" as a wild boar. He will then of course go to seek it, and if by chance other men of his house should kill a wild boar that day he will go to them and beg for its head or buy it at a great price if need be, carry it home to his bed-place, offer it cooked rice and kill a fowl before it, smearing the blood on the head and on himself and humbly begging for pardon. Or he may leave the corpse in the jungle and sacrifice a fowl before it there. On the following night he hopes to dream of the "Nyarong" again, and perhaps he is told to take the tusks from the dead boar and that they will bring him good luck. Unless he dreams something of this sort he feels that he has been mistaken and that the boar was not really his "Nyarong."

Perhaps only one in fifty or a hundred men is fortunate enough to have a "Nyarong," though all ardently desire it. Many a young man goes out to sleep on the grave of some distinguished person or in some wild and lonely spot and lives for some days on a very restricted diet, hoping that a "Nyarong" will come to him in his dreams.

When, as is most commonly the case, the "Nyarong" takes on the form of some animal, all individuals of that species become objects of especial regard to the fortunate Iban, and he of course will not kill or eat any such animal, and he will as far as possible restrain others from doing so. A "Nyarong" may change the form in which it manifests itself, but even then the Iban will continue to respect the animal-form in which it first appeared.

In some cases the cult of a "Nyarong" will spread through a whole family or household. The children and grandchildren will usually respect the species of animal to which a man's "Nyarong" belongs and perhaps sacrifice fowls or pigs to it occasionally. But it does not do anything for them; whereas it is asserted that, if the great-grandchildren of a man behave well to his "Nyarong," it will often befriend them just as much as its original *protégé*.

The above general account of the "Nyarong" is founded on the descriptions of many different Ibans, and we will now supplement it by describing several particular instances.

Angus (a Batang Lumar Iban) says that every Iban who has no "Nyarong" hopes to get some bird or beast as his helper at the "begawai," the feast given to the Petara. He himself has none, but he will not kill the gibbon because the "Nyarong" of his grandfather, who died twenty years ago, was a gibbon. Once a man came to his grandfather in a dream and said to him, "Don't you kill the gibbon," and then turned into a grey gibbon. This gibbon helped him to become rich and to take heads and in all possible ways. On one occasion when he was about to go on the warpath his "Nyarong" came to him in a dream and said, "Go on, I will help you," and the next day he saw in the jungle a grey gibbon which was undoubtedly his "Nyarong." When he died he said to his sons, "Don't you kill the gibbon," and his sons and grandsons have obeyed him in this ever since. Angus adds that when a man dreams of a "Nyarong" for the first time he does not believe it and will still kill animals of that kind; nor is a second dream enough, but when he dreams the same dream a third time, then his scepticism is overcome and he can no longer doubt his good fortune.

Angus himself once shot a gibbon when told to do so by one of us. He first said to it, "I don't want to kill you, but the Tuan who is giving me wages expects me to, and the blame is his. But if you are really the 'Nyarong' of my grandfather, make the shot miss you." He then shot and missed three times, and on shooting a fourth time he killed a gibbon, but not the one he had spoken to. Angus does not think the gibbon helps either his father or himself.

Payang, an old Katibas Iban, tells us that he has been helped by a python ever since he was a young man, when a man came to him in a dream and said, "Sometimes I become a python and sometimes a cobra, and I will always help you." It has certainly helped him very much, but he does not know whether it has helped his children; nevertheless, he has forbidden them to kill it. He does not like to speak of it, but he does so at our request. Payang concluded by saying that he had no doubt that we white men have "Nyarongs" very much more powerful than the Iban's, and that to them we owe our ability to do so many wonderful things.

Imban, an Iban who had recently moved to the Baram river from the Rejang, had once when sick seen in a dream the Labi-Labi, the large river-turtle (*Trionyx subplanus*), and made a promise that if he should recover he would never kill it. So when he settled on the Baram river as head of a household he attempted to impose a fine on his people for killing the Labi-Labi. They appealed to one of us as the resident magistrate, and it was decided that if Imban wished to insist on this observance he must remove to a small tributary stream. This he has done, and a few of his people have followed him and on them he enforces a strict observance of his cult of the Labi-Labi.

A still more interesting case is the following one:—A community of Ibans were building a new house on the Dabai river some years ago, and one day, while they were at work, a porcupine ran out of a hole in the ground near by. During the following night one of the party was told by the porcupine in a dream to join their new house with his (the porcupine's). So they completed their house, and ever since have made yearly feasts in honour of the porcupines that live below the house, and no one in the house dare injure one of them, though they will still kill and eat other porcupines in the jungle. They have had no death in the house during the seven years that it has been built, and this they attribute to the protecting power of the porcupines, and when anyone is sick they offer food to them and regard their good offices as far more important than the ministrations of the "inanang," the medicine man. Last year some relatives of these Ibans moved to this village, and for three months the knowledge of the part played by the porcupines was hid from them as a mysterious secret. At the end of that time this precious mystery was disclosed to the new-comers, and the porcupines were feasted with every variety of cooked rice, some of it being made into a rude image of a porcupine, and with rice-spirit and cakes of sugar and rice-flour, salt and dried fish, oil, betel-nut, and tobacco. Several fowls were slain, and their blood was daubed on the chin of each person in the house. The heart of one fowl was carefully taken out and put with the food offered to the porcupines, that they might read the omens from it, and they were then informed of the arrival of the new-comers. The fowls were waved over the heads of the people by the old men while they prayed the porcupines to give them long life and health and a token of their goodwill in the form of a smooth, rounded pebble. On an occasion of this sort it is highly probable that the required token will be found, for the spirit-helper would no doubt be surreptitiously helped by some member of the household who, being deficient in faith, prefers to make a certainty of so important a matter rather than leave it entirely to the "Nyarong."

#### CONCLUSION.

We have now to discuss some problems suggested by a review of the facts set forth above and to bring forward a few additional facts that seem to throw light on these questions.

The question that we will first discuss in this—Are all or any of the instances of peculiar regard paid to animals, or of animals sacrificed to gods or spirits, or of the ceremonial use of their blood, to be regarded as institutions surviving from a fully developed system of totem-worship now fallen into decay? It will have been noticed that a large number of the features of totem-worship, as it occurs in its best developed forms, occur among the people of one or other of the tribes of Sarawak. We have in the first place numerous cases in which a whole community refuses to kill or eat an animal which is believed to protect and aid them by omens and warnings and in other ways, and in which the animal is worshipped

with prayer and sacrifice (the hawk among various tribes); we have at least one instance of a community claiming to be related to a friendly species (Long Patas and the crocodile), and having as usual an extravagant myth to account for the belief; we have the domestic animal that is sacrificially slain, its blood being sprinkled on the worshippers and its flesh eaten by them, and that is never slain without religious rites (pig of the Kenyahs and Kayans); we have the animal that must not be killed tattooed on the skin of the men (the dog), or its skin worn by fully grown men only (the tiger-cat), or images of it made of clay or carved in wood and set up before the house (the hawk and crocodile); we have the animal that is claimed as a relative imitated in popular dances (the Dok-monkey of the Kayans), the belief that the souls of men assume the form of some animal that must not be killed or eaten (deer and the arctogale among Kalamantans), the observance by invalids of a very strict avoidance of contact with any part of an animal that must not be killed or eaten in any case (horned cattle among Kenyahs and Kayans).

Not only do we see these various customs, that in other parts of the world have been observed as living elements of totem-worship, and that in other parts have been accepted as evidence of totem-worship in the past, but in the agricultural habits of the people we may see an efficient cause of the decay of totem-worship if at some time in the past it has flourished among them. For it has been pointed out, especially by Mr. Jevons in his *Introduction to the History of Religion*, that totemism seems to flourish most naturally among tribes of hunters, and that the introduction of agriculture must tend towards its decay. Now there is some reason to suppose that the introduction to Borneo of rice and of the art of cultivating it is of comparatively recent date. Crawford reckoned that the cultivation of paddy was introduced to the southern parts of Borneo from Java some three hundred years ago, and into the northern parts from the Philippine Islands about one hundred and fifty years ago. But whatever the date of the occurrence may have been, it seems to be certain that, by the introduction of paddy-cultivation from some other country, most of the tribes of Sarawak were converted, probably very rapidly, from hunting to agriculture. This conversion must have caused great changes in their social conditions and in their customs and superstitions, and if totemism flourished among them while they were still simple hunters, its decay may well have been one of the chief of these changes.

A second factor that would have tended to bring about this change is the prevalence of a belief in a god or beneficent spirit more powerful than all others and more directly concerned with the welfare of his worshippers, however this belief may have come into being. And a third factor that may have tended in the same direction is the custom of head-hunting, and the important part played by the heads in the religious life of the people. For there is some reason to think that head-hunting is a comparatively young institution among the tribes of Sarawak.

But in spite of all this and although we do not think it is possible completely to disprove the truth of this hypothesis, we are inclined to reject it. We are led to do so by four considerations. In the first place, if by totemism we mean a social organisation consisting in the division of a people into groups or clans, each of which worships or holds in superstitious regard one or more kinds of animal or plant or other natural objects to which the members of the group claim to be related by blood or by descent, then it seems to us sufficiently wonderful that this system should have existed among peoples so remote from one another in all things, save certain of the external conditions of life, as the Indians of North America and the indigenes of Australia. And it seems to us that to invoke the aid of the hypothesis of totemism in the past to explain the existence of a set of animal or plant superstitions in any particular case is but to increase the mystery that shrouds their origin; for unless it can be shown that the adoption or development of totemism by any people brings with it immense advantages for them in the struggle for existence, every fresh case in which the evidence compels us to admit its occurrence, whether in the past or as a still flourishing institution, can but increase the wonder with which we have to regard its wide distribution.

Secondly, we have in the total absence of totemism among the Punans very strong ground for rejecting the suggestion of its previous existence among the Kenyahs. For in physical characters, in language, and, as far as the difference in the mode of life permits, in customs and beliefs the Punans resemble the Kenyahs so closely that we must assume them to be closely allied by blood, and it seems probable that the Punans have merely persisted in the social condition from which the Kenyahs and other tribes have been raised by the adoption of agriculture and the practice of building substantial houses. Yet, as we have said, the Punans, although in that condition of nomadic hunters which is probably the most favourable to the development and persistence of totemism, observe hardly any restrictions in their hunting, and in fact seem to kill and eat with equal freedom almost every bird and beast of the jungle, shooting them with the blowpipe and poisoned darts with consummate skill. The only exceptions to this rule are, as far as we know, the omen-birds, and as we have said, it seems doubtful whether even these are excepted in the case of Punans who have not had much intercourse with other peoples.

Thirdly, although it may be said that even at the present time many of the features of the religious side of totemism are present, we have not been able to discover any traces of a social organisation based upon totemism. There is no trace of any general division of the people of any tribe into groups which claim specially intimate relations with different animals, except in the case of the Kalamantans; and in their case such special relations seem to be the result merely of the different conditions under which the various scattered groups now live. There are no restrictions in the choice of a wife that might indicate a rule of endogamy or exogamy. There are no ceremonies to initiate youths into tribal mysteries; certain ceremonies in which the youths take a leading part are directed

exclusively to training them for war and the taking of heads in battle. We know of no instance of any group of people being named after an animal or plant which is claimed as a relative and in the case of the more homogeneous tribes, such as the Kenyahs and Kayans, all prohibitions with regard to animals and all benefits conferred by them are shared equally by all the members of any one community and, with but very few exceptions, are the same for all the communities of the tribe.

Lastly, we think it unnecessary to regard the animal superstitions of these tribes as survivals of totemism, because it seems possible to find a more direct and natural explanation of almost every case. The numerous cases seem to fall into two groups, the superstitious practices concerned with the sacrificial animals, the pig and fowl, on the one hand, and all those concerned with the various other animals on the other hand. These latter may, we think, be regarded as the expression of the direct and logical reaction of the mind of the savage to the impression made upon it by the behaviour of the animals.

It has been admirably shown by Professor Lloyd Morgan<sup>1</sup> how we ourselves, and even professed psychologists among us, tend to overestimate the complexity of the mental processes of animals, and there can be no doubt that savages generally are subject to this error in a very much greater degree, that, in fact, they make, without questioning and in most cases without explicit statement even to themselves, the practical assumption that the mental processes of animals, their passions, desires and motives, and powers of reasoning are of the same order as and in fact extremely similar to their own. That the Kenyahs entertain this belief in a very practical manner is shown by their conduct when preparing for a hunting or fishing excursion. If, for example, they are preparing to poison the fish of a section of the river with the "tuba" root, they always speak of the matter as little as possible and use the most indirect and fanciful modes of expression; thus they will say, "There are many leaves fallen here," meaning, "There are plenty of fish in this part of the river." And these elaborate precautions are taken lest the birds should overhear their remarks and inform the fish of their intentions when of course the fish would not stay to be caught but would swim away to some other part of the river.

Since this belief seems to be common to all or almost all savages and primitive peoples, it would be a strange thing if prohibitions against killing and eating certain animals and various superstitious practices in regard to animals were not practically universal among them.

Bearing in mind the reality of this belief in the minds of these people, it is easy to understand why they should shrink from killing any creature so malignant-looking and powerful for harm as a snake, and why they should feel uneasy in the presence of, and to some extent dread, the maias and the long-nosed monkey, creatures whose resemblance to man seems even to us somewhat uncanny. Their objection to killing their troublesome dogs seems

<sup>1</sup> *Introduction to Comparative Psychology*, and elsewhere.

to be due to a somewhat similar feeling, a recognition of intelligence and emotions not unlike their own, but mysteriously hidden from them by the dumbness of the animals. In the same way it is clear that it is but a very simple and logical inference that the crocodiles are a friendly race, and but the clearest dictate of prudence to avoid offending creatures so powerful and agile ; for if they were possessed of the mental powers attributed to them by the imagination of the people, they might easily make it impossible for men to travel upon the rivers and dwell on their banks. A similar process would lead to the prohibition against the eating of the tiger-cat, the only large and dangerous carnivore.

The origin of the prohibitions against killing and eating deer and horned cattle is perhaps not so clear. But it must be remembered that until very recently the only horned cattle known to the tribes of the interior were the wild cattle (the Saladang of the Malay peninsula), very fierce and powerful creatures. These wild cattle hide themselves in the remotest recesses of the forests, and as they are but very rarely seen, they may well be regarded as somewhat mysterious and awful. Deer, on the other hand, abound in the forests and like most deer are very timid, and it is perhaps their timidity that has led in some cases to the prohibition against their flesh, for we have seen how a Kenyah chief feared lest his little son, safe at home a hundred miles away, should be infected with the deer's timidity if he should come in contact with the skin of one. In another case we have seen that by the people of one community deer are regarded as relatives or as containing the souls of their ancestors, and that this belief probably had its origin in the fact that deer are in the habit of frequenting the grassy clearings made about the tombs by the people. And we saw that a similar belief in the case of certain carnivores probably had a similar origin.

We think that even the elaborate cult of the hawk and of the other omen-birds is to be explained on these lines. If we think of his erratic behaviour, how he will come suddenly rushing down out of the remotest blue of the sky to hover overhead and then perhaps to circle hither and thither in an apparently aimless manner, or will keep flying on before a boat on the river or come swiftly to meet it screaming as he comes,—if we think of this, it is easy to understand how a people whose whole world consists of dense forests and dangerous rivers, a people extremely ignorant, yet intelligent and speculative and always looking out for signs that shall guide them among the mystery and dangers that surround them, may have come to see in the hawk a messenger sent to them by the beneficent Supreme Being. For this Being is vaguely conceived by them as dwelling in the skies, whence the hawk comes, and whither he so often returns. And then we may suppose that the messenger himself has come to be an object of worship in various degrees with the different tribes, as seems to be the rule in all religions systems in which servants of a deity mediate between him and man.

The origin of the various rites in which the fowl and pig are sacrificed, and their blood smeared or sprinkled on men or on the altar-posts of gods, or on the image of the hawk, and their souls charged with messages to the Supreme Being—the origin of this group of customs must be sought in a different direction.

To anyone acquainted with Robertson Smith's *Religion of the Semites*, and with Mr. Jevons's *Introduction to the History of Religion*, the idea naturally suggests itself that these animals are or were true totems, of which the cult has passed into a late stage of decay. It might be supposed that, being originally totem animals, they thereby became domesticated by their worshippers, that they were occasionally slain as a rite for the renewal of the bond between them and their worshippers, their blood being smeared or sprinkled on the latter, and their flesh ceremonially eaten by them, and that the eating of them has become more and more frequent, until now every religious rite, of however small importance, is made the occasion for the killing and eating of them. It might also be supposed that, with the development or the adoption of the conception of a Supreme Being, the original purpose and character of the rites had become obscure, so that the slaughtered animals are now regarded in some cases as sacrifices offered to the deity.

But we do not think that this tempting hypothesis as to the origin of the rites can be upheld in this case. In the first place the wild pig of the jungle is hunted in sport and killed and eaten freely by all the various tribes, and is, in fact, treated on the whole with less respect and ceremony than perhaps any other animal. Secondly, the domestic pig differs so much from the wild pig that Mr. Oldfield Thomas has pronounced it to be of a different species, and it seems likely that it has been introduced to Borneo by the Chinese at a comparatively recent date. Further, there is reason to suppose that the custom of sacrificing pigs and fowls arose through the substitution of them for human beings in certain rites. For there is a number of rites, of which it is admitted by the people that the slaughter of human beings was formerly a central feature; of these, the most important and the most widely spread are the funeral rites of a great chief, the rites at the building of a new house, and those on returning from a successful war expedition. In all these, fowls or pigs are now substituted as a rule, but we know of instances in which in recent years human beings were the victims. Thus some six years ago, on the death of the chief of a community of Kalamantans (the Orang Bukit), a slave was bought by his son, and a feast was made, and the slave was killed through each man of the community giving him a slight cut with his *parang*. This was said to be the revival of an old and almost obsolete custom. In another recent case, when a mixed party of Kayans and Kenyahs returned from a successful war expedition, only the Kenyahs had secured heads. The Kayans therefore took an old woman, one of the captives, and killed her by driving a long pole against her abdomen, as many of them as possible taking part by holding and helping to thrust the pole. The head was then divided among the parties of Kayans, and pieces of the flesh were hung on poles beside the river, just as is

done with the flesh of slain enemies and with the flesh of the pigs that are always slaughtered on such occasions. It was said that this killing of a human being was equivalent to killing a pig, only much finer.

Kayans tell us that they used to kill slaves at the death of a chief, usually three, but at least one, and that they nailed them to the tomb, in order that they might accompany the chief on his long journey to the other world and paddle the canoe in which he must travel. This is no longer done, but a wooden figure of a man is put up at the head and another of a woman at the foot of the coffin of a chief as it lies in state before the funeral. And a small wooden figure of a man is usually fixed on the top of the tomb, and it is said that this is to row the canoe for the chief. A live fowl is usually tied to this figure, and although it is said to be put there merely to eat the grubs, we think there can be no doubt that we see here going on the process of substitution of fowl for slave.

In building a new house it is customary among almost all these tribes to put a fowl into the hole dug to receive the first of the piles which are to support the house, and to allow the end of the pile to fall upon the fowl so as to kill it. The Kenyahs admit that formerly a girl was usually killed in this way, and there is reason to believe that in all cases a human victim was formerly the rule, and that the fowl is a substitute merely. In the following cases, too, we see the idea of substitution of fowls or pigs for men.

It is customary with the Malanaus of Niah to kill fowls and put them together with eggs on poles in the caves in which the swifts build the edible nests, in order to secure a good crop of nests. One year when the nests were scanty they bought a slave in Brunei and killed him in the cave in the hope of increasing the number of nests.

It was formerly the custom to exact a fine of one or more slaves as punishment for certain offences, e.g., the accidental setting fire to a house. At the present time, when slaves are scarcer than of yore, slaves are rarely given in such cases, but usually brass gongs, always accompanied by a pig.

Now when slaves were killed and nailed to the tomb of a chief the purpose was perfectly clear and simple. It was done in just the same spirit in which the weapons and shield and clothing are still always hung on the tomb of a deceased warrior in order that his soul may not be without them on the journey to the other world. On the introduction of the domestic pig it may well have become customary for the poorer classes, who could not afford to kill a slave, or for families which owned no slaves, to kill a pig as in some degree a compensation for the want of human victims. If such a custom were once introduced it may well have spread rapidly from motives of both economy and humanity, for slaves are as a rule very kindly treated by their masters, and in many cases come to be regarded as members of their family.

We may suppose, too, that formerly it was the custom to kill a slave when prayers of public importance were made to the Supreme Being in order that the

soul of the slave might carry the prayer to him. If this was the case, the substitution of pig for slave, on the introduction of the domestic pig, may be even more readily conceived to have become customary, when we remember that these people regard the souls of animals as essentially similar to their own. If such a custom of substitution once gained a footing it would naturally become usual to take the opportunity of communicating with the higher powers whenever a pig was to be slaughtered. This view, that in all sacrifices the pig and fowl are but substitutes for human victims, finds very strong support in the following facts :—The Kalabits, a tribe inhabiting the north-western corner of the Baram district, breed the water-buffalo and use it in cultivating their land. It has probably been introduced to this area from North Borneo at a recent date. The religious rites of these people closely resemble those of the tribes with which we have been dealing above, but in all cases in which pigs are sacrificed by the latter buffaloes are used by the Kalabits.

The rite of sprinkling the blood of pigs and fowls on men and on the altar-posts and images may, we think, be an extension or adaptation of the blood-brotherhood ceremony. We have seen that with the Kayans and Kenyahs the essential feature of this ceremony is the drawing of a little blood from the arm of the two men, either of whom then drinks or consumes in a cigarette the blood of the other one. Such a rite calls for no remote explanation ; it seems to have suggested itself naturally to the minds of primitive people all the world over, as a process for the cementing of friendship. When two hostile communities wished to make a permanent peace with one another it would be natural that they should wish to perform a ceremony similar to the rite of blood-brotherhood. But the interchange of drops of blood between large numbers of persons would obviously be inconvenient, and if the idea of substituting fowls and pigs for human victims had once taken root in their minds, it would have been but a small step to substitute their blood for human blood in the peace-making ceremonies. We have seen above (p. 183) that in such a ceremony fowls are exchanged by the two parties, so that the men of either party are smeared with the blood of the fowl originally belonging to the other party. It may be that here, too, the blood of slaves was formerly used, but of this we have no evidence. The custom of smearing the blood of fowls and pigs on the two parties to a friendly compact having been arrived at in this way, the rite might readily be extended to the cases in which the hawk, represented by his wooden image, or the Supreme Being, also represented by an image, is invoked as one of the parties to the compact. We are inclined to think that in some such way as we have here suggested, namely, by the substitution of pigs and fowls for human victims, and of their blood for human blood, the origin of the customs of sacrificing fowls and pigs, and of ceremonially sprinkling their blood, may be explained.

We conclude, then, that the various superstitions entertained by these tribes in regard to animals are not to be looked upon as survivals of totem-worship, but that they may all be explained in a simpler and more satisfactory manner. But

before bringing our paper to an end we would point out that among the facts we have described there are some which seem to suggest a possible and indeed, as it seems to us, a very natural and probable mode of origin of totem-worship. We refer to the varieties of the "Nyarong" of the Ibans and sporadic analogous cases among the other tribes. We have seen that the "Nyarong" may assume the form of some curious natural object or of some one animal, distinguished from its fellows by some slight peculiarity, which receives the attentions of some one man only. In such cases the "Nyarong" is hardly distinguishable from a fetish. In other cases the man, being unable to distinguish the particular animal which he believes to be animated by his "Nyarong," extends his regard and gratitude to the whole species. In such a case it seems difficult to deny the name "individual totem" to the species if the term is to be used at all. In other cases, again, all the members of a man's family and all his descendants, and if he be a chief all the members of the community over which he rules, may come to share in the benefits conferred by the "Nyarong," and in the feeling of respect for and in performing rites in honour of the species of animal in one individual of which it is supposed to reside. In such cases the species approaches very closely the clan-totem in some of its varieties. (In speaking of the "Kobong" of certain natives of Western Australia, Sir G. Grey<sup>1</sup> says, "This arises from the family belief that some one individual of the species is their nearest friend to kill whom would be a great crime, and to be carefully avoided.")

Of similar cases among other tribes of guardian-animals appearing to men in dreams and claiming their respect and gratitude, we must mention the case of Aban Jau, a powerful chief of the Sebops, a sub-tribe of Kenyahs. He had hunted and eaten the wild pig freely like all other Kenyahs, until once in a dream a wild boar appeared to him and told him that he had always helped him in his fighting. Thereafter Aban Jau refused, until the day of his death, to kill or eat both the wild and the domestic pig, although he would still consult for omens the livers of pigs killed by others.

We have described above (p. 190) how a Kayan may become blood-brother to a crocodile in a dream, and may thereafter be called Baiya (crocodile), and how in this way one Kayan chief had come to regard himself as both son and nephew to crocodiles, and how he believed that they brought him success in hunting and carried him ashore when (in a dream) he had fallen into the river. The cousin of this chief, too, regarded himself as specially befriended by crocodiles because his great-grandfather had become blood-brother to one in a dream. So it is clear that the members of the family to which these young men belong are likely to continue to regard themselves as related by blood to the crocodiles and bound to them by special ties of gratitude.

In another case we saw how all the people of one household regard themselves as related to the crocodiles and specially favoured by them, explaining the relation as due to one of their ancestors having become a crocodile. In

<sup>1</sup> Quoted in Mr. Frazer's *Totemism*, p. 8.

another case we saw that some ill-defined relation to the gibbon is claimed by a community of Kenyahs, whose house is decorated with carvings of the form of the gibbon, and whose members will not kill the gibbon. And in yet another case we saw that a Kayan house is decorated with conventionalised carvings of some animal whose species has been forgotten by the community. In each of these last three cases it seems highly probable that the special relation to the animal was established by some such process as we see going on in the preceding case, so that we seem to have in this series of cases one of incipient totemism and others illustrating various stages of decay of abortive beginnings of totemism. And it is easy to imagine how in the absence of unfavourable conditions such beginnings might grow to a fully developed totem-system. For suppose that in any one community there happened to be at one time two or more prosperous families, each claiming to be related with and protected by some species of animal as the result of friendly overtures made by the animals to members of the families in their dreams; it would then be highly probable that members of other families, envious of the good fortune of these, would have similar dream-experiences and so come to claim a similar protection, until very soon the members of any family that could claim no such protection would come to be regarded as unfortunate and even somewhat disreputable beings, while the faith of one family in its guardian-animal would react upon and strengthen the faith of others in theirs. So a system of clan-totems would be established, around which would grow up various myths of origin, various magical practices, and various religious rites.

It is well known that such dreams as convince the Iban, the Kayan, and the Kenyah of the reality of his special relation to some animal and lead him to respect all animals of some one species produce similar results in other parts of the world. We quote the following passages from Mr. Frazer's remarks on individual totems in his book on totemism:—"An Australian seems usually to get his individual totem by dreaming that he has been transformed into an animal of that species." "In America the individual totem is usually the first animal of which a youth dreams during the long and generally solitary fasts which American Indians observe at puberty." Such dream experiences are, then, the *vera causa* of the inception of faith in individual totems among the peoples in which totemism is most highly developed, and among the tribes of Sarawak we find cases which illustrate how a similar faith, strengthened by further dreams and by the good fortune of its possessor, may spread to all the members of his family or of his household and to his descendants, until in some cases the guardian-animal becomes almost, though not quite, a clan-totem. The further development of such incipient totems among these tribes is probably prevented at the present time, not only by their agricultural habits, but also by their passionate addiction to war and fighting and head-hunting; for these pursuits necessitate the strict subordination of each community to its chief and compel all families to unite in the cult of the hawk to the detriment of all other

animal-cults, because the hawk is, by its habits, so much better suited than any other animal to be a guide to them on warlike expeditions.<sup>1</sup>

The prevalence of the belief in a Supreme Being must also tend to prevent the development of totemism, and we cannot conclude without saying something as to the possible origin of this conception of a beneficent Being more powerful than all others, who sends guidance and warnings by the omen-birds, and receives and answers the prayers carried to him by the souls of the fowls and pigs. It might be thought that this conception of a beneficent Supreme Being has been borrowed directly or indirectly from the Malays. But we do not think that this view is tenable in face of the fact that while the conception is a living belief among the Madangs, a tribe closely allied to the Kenyahs that inhabits a district in the remotest interior and has had no intercourse with Malays, the Ibans, who have had far more intercourse with the Malays than have the Kayans and Kenyahs, yet show least trace of this conception. As Archdeacon Perham has written of the Ibans, there are traces of the belief in one supreme God which suggest that the idea is one that has been prevalent, but has now almost died out. We are inclined rather to suppose that the tribes of the interior, such as the Kenyahs and Kayans, have evolved the conception for themselves, and that in fact Balli Penyalong of the Kenyahs is their god of war exalted above all others by the importance of the department of human activity over which he presides; for we have seen that they have conceived other gods, Ballingo, the god of thunder, Balli Sungai, the god of the rivers, whose anger is shown by the boiling flood, and Balli Atap, who keeps harm from the house, while the Kayans have gods of life, a creator of the world, Laki Kalira Murei, a god of harvesting, and others. It seems to us that the only difficult step in such a simple and direct evolution of the idea of a beneficent Supreme Being is the conception of gods or spirits that perform definite functions, such as Balli Atap, who guards the house, and the gods that preside over harvesting and war, as distinct from such gods or spirits as Ballingo and Balli Sungai. But there seems to be no doubt that this step has been taken by these peoples and that these various gods of abstract function have been evolved by them. And it seems to us that were a god of war once conceived it would be inevitable that, among communities whose chief interest is war and whose prosperity and very existence depend upon success in battle, such a god of battles should come to predominate over all others and to claim the almost exclusive regard of his worshippers. Such a predominance would be given the more easily to one god by these people because the necessity for strict subordination to their chiefs has familiarised them with the principle of obedience of subjects to a single ruler;

<sup>1</sup> Dr. Boas is of the opinion that the totems of the Indians of British Columbia have been developed from the personal "manitous," the guardian animals acquired by youths in dreams. Miss A. C. Fletcher is led to a similar conclusion by a study of the totems of the Omaha tribe of Indians (*Import of the Totem*, Salem, Mass., 1897). The facts described above in connection with the "Nyarong" of the Ibans and similar allied institutions among other tribes of Sarawak would seem, then, to support the views of these authors as to the origin of totemism.

while the beneficence of the Supreme Being thus evolved would inevitably result, for the god of battles must seem beneficent to the victors, and among these people only the victors survive. Again, this conception is one that undoubtedly makes for righteousness, because it reflects the character of the people, who, within the community and the tribe, are decent, humane, and honest folk.

We are conscious of presumption in venturing to adopt the view that the conception of a beneficent Supreme Being may possibly be neither the end nor the beginning of religion, neither the final result of an evolution, euhemeristic, totemistic, or other, prolonged through countless ages and generations, nor part of the stock-in-trade of primitive man mysteriously given, as Mr. Lang<sup>1</sup> seems to wish to make believe. Yet we are disposed to regard this conception as one that, amid the perpetual flux of opinion and belief which obtains among peoples destitute of written records, may be comparatively rapidly and easily arrived at under favourable conditions, such as seem to be afforded by tribes like the Kenyahs and Kayans, war-like, prosperous tribes subordinated to strong chiefs, and may as rapidly fall into neglect with change of social conditions, and may then remain as a vestige only to be discerned by curious research in the minds of a few individuals, as among the Ibans or the Australian blacks, until another turn of Fortune's wheel, perhaps the birth of some overmastering personality or a revival of national or tribal vigour, gives it a new period of life and power.

We hope to give some account of the superstitions of these people in regard to plants in a separate paper. Here we will only mention that none of the facts of this kind known to us seem to make against the views we have taken of the meaning and origin of some of the animal-cults.

<sup>1</sup> *The Making of Religion and Myth, Ritual and Religion*, 2nd edition.

## MEMORANDUM ON THE LANGUAGES OF THE PHILIPPINES.

BY WILLIAM E. W. MACKINLAY.

THE Philippines cannot be properly spoken of as Spanish-speaking territories. Within the confines of the Magellanic Archipelago the language of its ancient rulers has never been more than an exotic, spoken only by Spaniards and a comparatively few educated natives. A much larger number of natives, especially in the city of Manila, have acquired a smattering of Castilian, but by far the greater majority of the inhabitants of the islands do not understand it at all. Even within ten miles of Manila, natives can be found who do not speak a word of it, although the city has been the centre of Spanish learning in the Orient for more than three centuries.

The statement so often repeated in articles about the Philippines that there are anywhere from two hundred to three hundred "languages" spoken in the islands is so far from the truth that it refutes itself. The truth is that there are eight tongues spoken by the civilized races of the country, and about sixty dialects of the savage mountain tribes. A large number of these latter have never been reduced to writing, and but few have received any scientific study whatever. A dialect of Spanish is spoken in and around Zamboanga (Mindanao), and there are two or three dialects spoken by small half-civilized tribes. Besides the above mentioned languages and dialects, there are Negrito dialects, so far almost utterly unknown, spoken in the remotest mountains of many provinces.

By far the most cultured and advanced language of the Philippines is Tagalo, spoken in the eight provinces of Manila, Cavite, Bataan, Bulacan, Morong, Laguna, Batangas and Tayabas, and parts of Nueva Ecija, Mindoro, and Camarines, and at a few points of smaller importance. Like all the Philippine languages (Negrito dialects excepted), Tagalo belongs to the widely spread Malay family, which with its allied congeners of Polynesia and Micronesia, extends from Madagascar to Hawaii and from New Zealand to Formosa, as well as to the far off Easter Island west of Chili.

Compared with an Aryan language, Tagalo is deficient in many qualities which have made European tongues the vehicle of civilization. It is deficient in the expression of the verb "to be," and in the comparative and superlative of the adjective, and has no grammatical gender. The plural of nouns and pronouns is also very simple, the word *manŷá* being prefixed to the word pluralized. The article is also unvarying, as in English. In the conjugation of the verb it is also

somewhat imperfect, as only a few tenses are clearly distinguished, and the moods are nebulous. The latter are the infinitive, imperative, indicative and subjunctive. The tenses are the present, past, future, perfect, future perfect and pluperfect. The past is expressed like the present, the sense being indicated by the context. There are two voices, the active and the passive. The complexity of the Tagalo verb, however, arises from the fact that there are seventeen classes of verbs, each with its prefix for the active and passive voices. The first plural personal pronoun "we," also has the peculiarity of having a double form. The first includes both the speaker and the addressed, but the second excludes the latter. Thus *Angátíng báhay* (Our house), includes both, but *Angámíng báhay* (Our house), excludes the party addressed. The article also has two forms, one used with proper, and the other used with common nouns. The adverb greatly resembles the verb in usage, and in form the adjective. The other forms of speech do not greatly vary from those of European languages in their usage. A striking feature of the language are the "ties" *G*, *NG*, *Na*, and *Ay*, which are inserted between discordant words, and also serve to indicate the genitive in the case of the three first, while the last is a substitute for the verb "to be." Tagalo lacks the English *F*, *Th*, *J*, *Sh*, and *Z*, but has *Ng*, a peculiar guttural-nasal.

Second to Tagalo in importance is the Visaya language, which, however, is divided into several districts, known as Cebuano, Boholano, Panayano, Halay, and Halagueina, all mutually intelligible. The centre of the Visayan race is at Iloilo, with a large subcentre at Cebú. The maritime tendencies of the Visayans have carried their tongue far beyond its original limits, and it is now spoken on the islands of Panay, Bohol, Cebú, Leyte, Masbate, Ticao, Romblon, Samar, and the districts of Butuan, Dapitan, Davao, Mati, Misamis, and Surigao in Mindanao, as well as in a part of the island of Mindoro.

Visaya greatly resembles Tagalo, but is a more virile and expressive tongue. It has also preserved more of the original vocabulary of the primitive language, being less affected by contact with Spanish. It has substantially the same structure as the more northern speech, but is blunter as befits a race of sailors. For example, the expression for "our house," using the exclusive form, is *Ang caming balay*; Tagalo, *Ang áming báhay*. The numerals in several languages of the islands at the close of this article will more clearly show their differences and resemblances.

Bicol is the third most important language, and is spoken in the great hemp-producing peninsula at the south-east extremity of Luzon, comprising the provinces of Ambos Camarines, Albay, and Sorsogon, as well as in the large island of Catanduanes. It is an intermediate tongue between Tagalo and Visaya, and has preserved a large number of archaic words now disused in those tongues. With the same general grammar, it differs much in vocabulary from both in the everyday words of life, and the language as spoken in the interior differs a little from the same as spoken in the seaport towns. Bicol

is also much less euphonious and of harder pronunciation than either of the above mentioned. From both languages it can be said to differ as English and Scottish do.

The next four languages, Ilocano, Cagayan, or Ibaneg, Pampango, and Pangasinán, are spoken in the north-western part of Luzon; from the south line of Pampanga Province to the northern point of the island, along a strip of seaboard from ten to twenty or more miles in breadth. This district includes the Provinces of Pampanga and Tarlac, where Pampango is spoken; Pangasinán and a part of Zambales, in which Pangasinán is used; the northern part of Cagayan (Cagayan); and Union, Ilocos Sur and Ilocos Norte (Ilocano). Some parts of Tarlac and Nueva Ecija also belong to the Pampanga area.

These languages closely resemble each other and are still more archaic in vocabulary and syntax than the more southern tongues. Ilocano has been reduced to writing since the early part of the seventeenth century, and this has undoubtedly preserved it from change.

The eighth "civilised" tongue is Calamiano, spoken by the people of that small group, which is situated between the islands of Mindoro and Palawan. It is really a dialect of Tagbanua, the language of a great part of Palawan.

The savage tribes are found in three large groups, with another isolated group in an outlying island (Negros), and one tribe in the islands of Mindoro and Romblon. The first large aggregation is found in the mountains and more hilly regions of the northern part of Luzon, the second occupies the greater part of the little known Mindanao, and the third is in the islands of Palawan and Calamianes. These tongues are little known, but are all of the Malay family. Those of Luzon resemble very primitive Ilocano or Tagalo, while those of Mindanao have more likeness to the dialects of Celebes and Borneo. Joloáno, the speech of the Moros, is the best known of these languages, and is almost like the Malay of Singapore. The great group of savage tribes in Northern Luzon is known collectively to the Spaniards as Igorrote, and is as yet almost completely unknown philologically.

The first great group, roughly speaking, occupies a large part of Luzon, north of the Gulf of Lingayen and east of the Ilocanos. It also embraces part of the Province of Zambales. The tongues spoken are Apayao, Banao, Catalangan, Cataon, Caucanay, Dadaya, Egongot, Gaddan, Guinaan, Ibilao, Idayan, Ifuga, Inabaloy, Isinay, Iraya, Itaves, Itetepan, Malauag, Tiguian, Tino, and Yogat. The provinces embraced either in whole or in part by this linguistic region, are those of Abra, Benguet, Bontoc, Cagayan, Ilocos Norte, Ilocos Sur, Isabela, Nueva Vizcaya, Principe, and Zambales, together with the districts of Amburayan, Binatangan and Cayapa. In the Batanes Islands, north of this region, Batan is also spoken. These tribes are very little affected by civilization, and the majority are yet pagans.

The second great group encountered in the island of Mindanao and its smaller dependencies of Joló, Siasi, Taui-Taui, and Basilan, is constituted of the

tribes who use Atá, Bagobo, Bilan, Calagan, Guianga, Dulangan, Iliano, Joloáno, Maguindinao, Malanao, Mandaya, Manobo, Mamanua, Samalés, Samal-laut, Sanguil, Subano, Tagabili, Tagcalao, Tagbaua, and Tiruray. These peoples are pagans and Mohammedans, with a sprinkling of Catholics. As has been noted above, some parts of Mindanao are inhabited by Visayans, and the peninsula and town of Zamboanga by semi-civilised natives, who alone among Filipinos have adopted the language of their former rulers, Spanish. Buquidnon, which must not be confounded with a language of Negros, is also spoken in Mindanao.

In the island of Negros, the hill tongues are known as Carolano and Buquitnon, both allied to the speech of the other tribes to the south.

Manguian is spoken in Mindoro and Romblon, islands to the south-west of Luzon, and a little further on are the islets known as the Calamianes, where Coynó and Agutaino yet linger.

Still further to the south-west lies the long and narrow Palawan or Paragua, with its satellite of Basilan at its south-west point. Tagbanua, Tandolano, Batac and Joloáno are the dialects of these islands, which is more unexplored linguistically than any other. Tagbanua is remarkable from the fact that the ancient semi-syllabic alphabet used in ante-Spanish days, is used in its written communications. It has sixteen characters, and to the writer's recollection greatly resembles Siamese or Burmese writing. Batac is an exotic in the Philippines, and is used by the descendants of quite recent immigrants from Sumatra, which is believed by the leading native philologists to be the original home of all the Malay race.

The eight leading languages are written in Roman letters, while Joloáno and many other dialects of Mindanao use the Arabic alphabet.

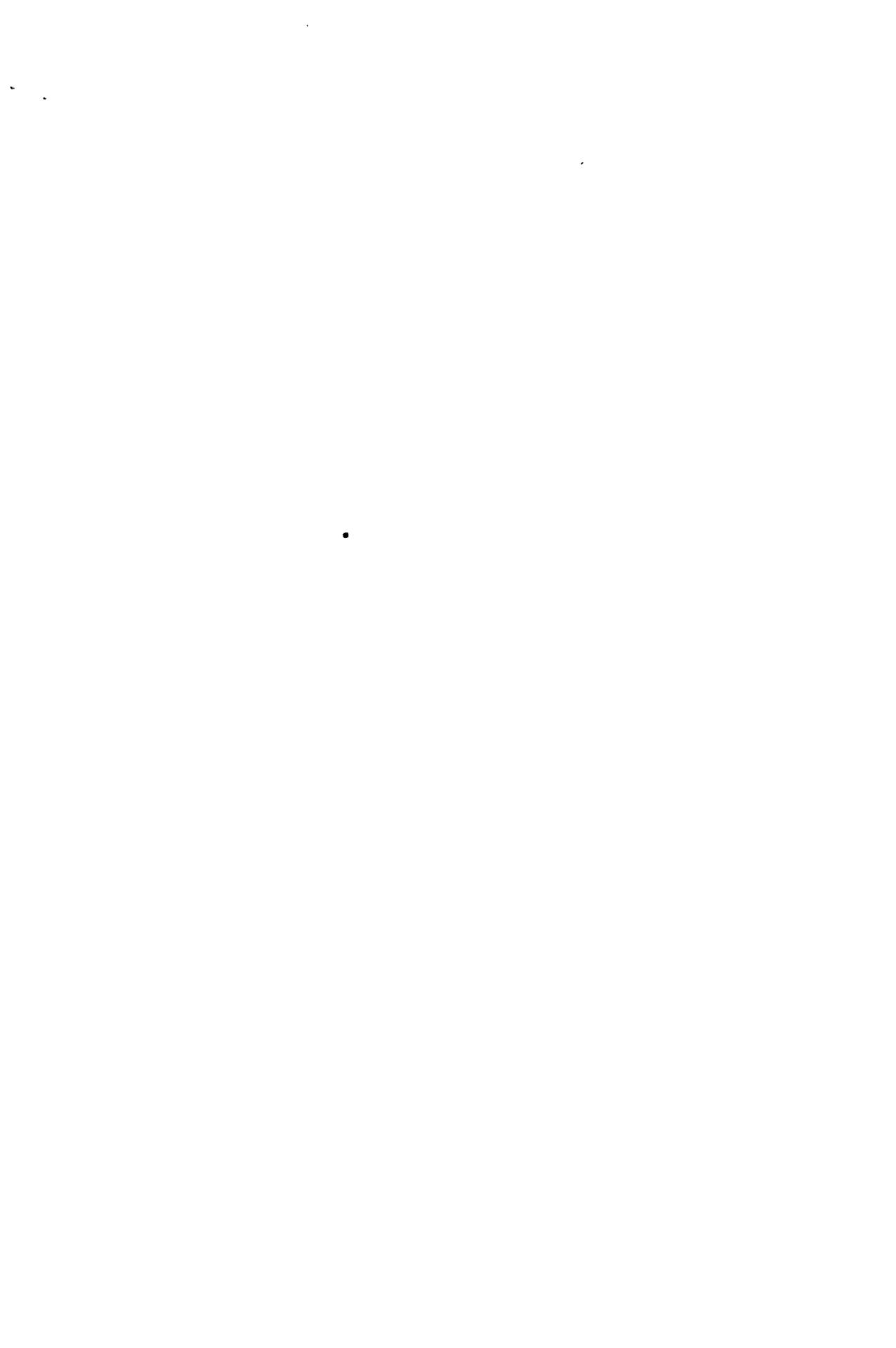
Among the leading workers in this field have been Professor Blumentritt, of Austro-Hungary, Mr. de Los Reyes of Manila, and many others, among them the distinguished Frenchman, de la Couperie, who died in despair, because his work was not, as he thought, appreciated just on the eve of success.

The foregoing is a brief *résumé* of the linguistic field in the Philippines, and it is to be hoped that work and research in this line will go on, a credit to the investigators and an aid to the officers and employés of the United States, under whose banner this medley of races shall find peace, prosperity and true liberty.

*The first ten cardinals in Tagalo, Visaya, Bicol, Pampanga, Malay, Pangasinan, Ilocano, Maguindanao, Ibanag (Cagayan) and Bagobo.*

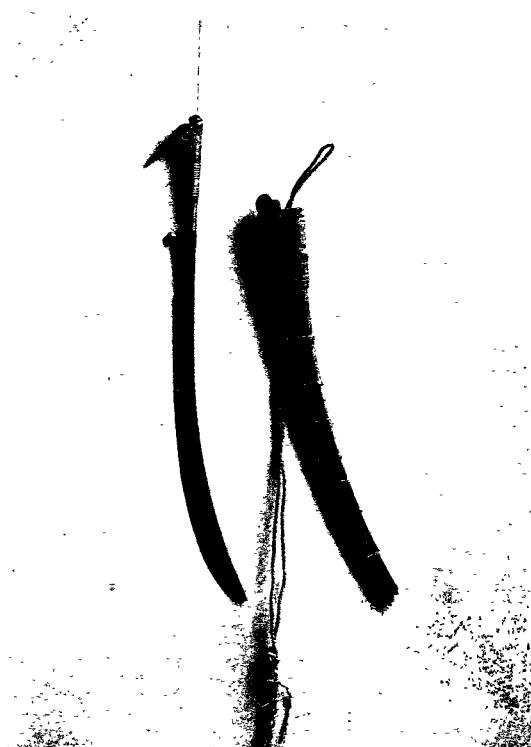
	<i>Tagalo.</i>	<i>Visaya.</i>	<i>Bicol.</i>	<i>Pampango.</i>	<i>Ibanag.</i>
1	Isá.	Isá ; Usá.	Sarô.	Metung.	Adde.
2	Dalauá.	Daroa ; Duha.	Duà.	Aduá.	Dua.
3	Tatló.	Tatlo ; toló.	Toló.	Atlú.	Tallu.
4	Apat.	Apát ; opát.	Apát.	Apat.	Appat.
5	Limá.	Limá.	Limá.	Lima.	Lima.
6	Anim.	Anúm ; unúm.	Anòm.	Anam.	Annam.
7	Pitó.	Pitó.	Pitó.	Pitú.	Pitu.
8	Ualó.	Ualó.	Ualó.	Ualú.	Ualú.
9	Siyám.	Siám.	Siam.	Siam.	Siam.
10	Sangpóuo.	Napolo ; poló.	Sangpolô.	Apúlu.	Mafulu.

	<i>Malay.</i>	<i>Pangasinan.</i>	<i>Ilocano.</i>	<i>Maguindanao.</i>	<i>Bagobo.</i>
1	Satu.	Saguey.	Meysa.	Isa.	Sab-bad.
2	Duwa.	Dua.	Dua.	Dúa.	Duá.
3	Tiga.	Tallo.	Talló.	Telu.	Tatlo.
4	Ampat.	Apat.	Uppat.	Apat.	Appat.
5	Lima.	Lima.	Lima.	Lima.	Lima.
6	Anam.	Anim.	Inném.	Anem.	Annam.
7	Tujuh.	Pito.	Pito.	Pitú.	Pit-to.
8	Delapan.	Ualo.	Ualo.	Ualu.	Ualo.
9	Sembilan.	Siam.	Siam.	Siau.	Sio.
10	Sapuluh.	Sampuo.	San̄apol-lo.	Sapulu.	Sapolo.

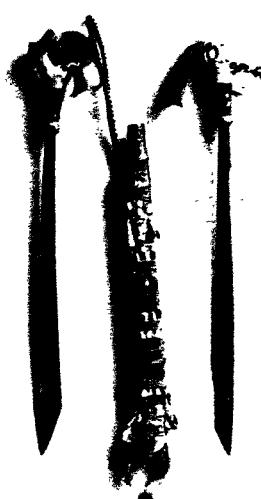




PANDAT (TYPE 10).



NIABOR (TYPE 2).



(a) (b)  
PARANG ILANG (TYPE 1).

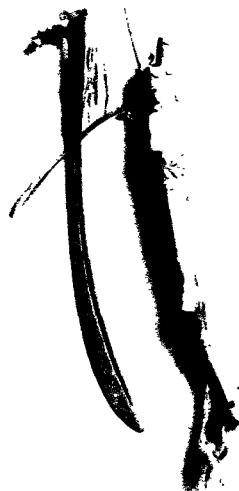


BAYU (TYPE 5). JIMPUL (TYPE 4).

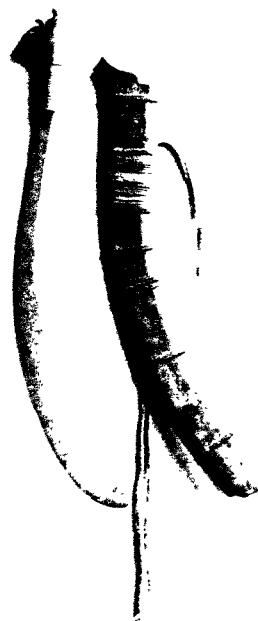




PAKAYUN (TYPE 6).



LANGGAI TINGGANG (TYPE 3).



PARANG PEDANG (TYPE 7).



LATOK (TYPE 8).      BUKO (TYPE 9).

## A PROVISIONAL CLASSIFICATION OF THE SWORDS OF THE SARAWAK TRIBES.

By R. SHELFORD, M.A., C.M.Z.S.

[PRESENTED 12TH NOVEMBER, 1901. WITH PLATES XVI, XVII.]

THE great majority of Bornean swords found in the ethnographical collections of European museums bear on their labels merely the vaguest and most insufficient data as to place of origin, nature, function, etc., a matter of little surprise seeing that practically no literature relating to these weapons exists. The following paper, treating of the swords of the Sarawak tribes, seeks in part to remedy this. I have drawn up brief diagnostic descriptions of all the varieties of swords from Sarawak with which I am acquainted, have briefly classified them and given their tribal distribution; the synoptical key at the end of the paper, though perhaps as artificial as such keys usually are, will, I hope, enable museum curators to identify readily and correctly most of the specimens of Bornean swords in the collections under their charge. The paper is the result of researches and inquiries extending over a period of three years, and though I have no doubt that further researches along the same lines will bring to light fresh information, I have no reason to believe that the classification that I have adopted will be altered in any important detail;<sup>1</sup> at the same time it is capable of extension and must therefore be looked on as provisional only. The illustrations are taken from specimens in my own collection, but the specimens in the Sarawak Museum collection have, through the mouths of reliable natives, yielded much valuable information, and I have also seen many examples in the possession of various officers of the Sarawak service.

The *kris*, a double-edged dagger, essentially a Malay weapon, and the *kompilan*, a long two-handed sword, used by the Ilanun pirates, who frequent the coasts of many of the Malayan Islands, are not discussed here, although met with in Borneo.

It should be noted that though some of the swords here described are intended primarily for use in warfare, they may also serve as agricultural implements or as carpentering tools or *vice versa*.

*Terminology employed.*—*Parang* is the Malay and Sea-Dyak word for these weapons, and will be used in preference to the English word *sword*.

The blade of a *parang* measures from 50 to 100 centimetres in length; it has a back, an edge, and two sides. When held in the right hand with the back

<sup>1</sup> A few swords from Dutch Borneo that I have seen since this paper was written do not differ at all markedly from those from Sarawak.

upwards, that side on which the thumb is placed on the handle is the inner side. The edge is *anterior* and the back is *posterior*; any pattern which is nearer to the one or the other is respectively anterior or posterior. The back may be straight or with a concave curvature, it never has a convex curvature. The edge similarly may be straight or with a convex curvature, it never has a concave curvature. The blade may also have a slight outward curvature. The sides of the blade may be flat or as in the *parang ilang* the inner side is concave and the outer convex in an antero-posterior direction (in left-handed *parang ilang* these aspects are of course reversed). The edge rarely reaches up to the handle, the intervening portion may be termed the *shoulder*. The back and the edge may pass insensibly into the point of the blade, but most frequently the back is much shorter than the edge, so that the blade appears as if it had been obliquely truncated; this truncate edge may be termed the *slope*; the angle and consequently the length of the slope vary considerably in the different varieties of *parangs*. The handle, which is made either of stag's horn, bone or wood, is always carved and frequently decorated with tufts of dyed hair. The blade is inserted into a hollowed-out part of the handle and secured by a stopping of stick-lac. That part of the handle which is held in the hand is served with plaited rattan, wire, or metal rings, and is termed the *grip*. The decorated part of the handle is not held in the hand, and is termed the *head*.

The sheath is invariably composed of two grooved slats of wood roughly of the shape of the blade, and bound together by plaited rattan or wire; along the inner side of the sheath there is generally lashed a bark pocket containing a small knife with a long, angled handle.

The *parang* is worn strapped to the left hip, with the edge directed upwards.

The following is a list of the varieties of *parangs* known to me, with their tribal distribution :—

1. <i>Párang ilang</i> ... ... ...	Kayans, Kenyahs, Kajámans.
Kyan name, <i>Málat</i> or <i>Mandau</i>	{ Kanówits, Kalábits, Púnans.
Kenyah name, <i>Baieng</i> ...	Úkits and allied tribes.
2. <i>Niábor</i> ... ... ...	Sea-Dyaks.
3. <i>Lánggái tingyang</i> ... ..	Sea-Dyaks.
4. <i>Jímpül</i> ... ... ...	Sea-Dyaks.
5. <i>Báyu</i> .. ... ...	Sea-Dyaks.
6. <i>Pákayün</i> ... ... ..	Műrúts.
7. <i>Párang pédáng</i> ... ... ...	Malays, Milános.
8. <i>Lătök</i> ... ... ...	Malays, Milános.
9. <i>Bükō</i> ... ... ...	Land-Dyaks.
10. <i>Pándat</i> ... ... ...	Land-Dyaks.

1. *Parang ilang*.—This is the term applied by Malays and Sea-Dyaks to the weapon of the Kayans and allied tribes mentioned above: the meaning of the word *ilang* I have not been able to ascertain. The blade of this weapon (Plate XVI,

lower left), which varies in length from 50–70 centimetres, differs from that of all others in being concave on the inner side and convex on the outer side in an antero-posterior direction; the blade also curves slightly outwards. At the greatest breadth of the blade, the back ceases and there is a slope which varies much in length. The edge of the blade ceases at about 8 centimetres from the handle, resulting in the formation of a shoulder. A pattern generally occupies the shoulder and runs along the posterior part of the blade on its outer aspect only till it reaches the slope. The pattern may be either incised or fretted, or made up of silver and brass hammered into the body of the blade, or a combination of all three of these methods may be employed; less frequently the blade is quite plain. The elements of the patterns with which I am acquainted are as follows:—*udoh asu*, a dragon design; *ulai nipa*, or snake design, being a continuous scroll pattern; *karan*, short incised lines, arranged in groups of two or three; *merkutau*, brass or silver studs hammered into the blade, sometimes completely perforating it; *lukut*, a brass stud enclosed in a brass circle, supposed to represent a valuable and ancient bead, strings of which are worn by chiefs. All these elements may occur on one blade. The slope of the blade is very variable, both in length, curvature and ornamentation, and by virtue of these differences, and of variations in pattern, the natives subdivide the *parang ilang* into numerous varieties; the schemes of classification of the various tribes do not coincide, and the names of identically similar varieties interchange in the most bewildering manner, as one travels from one district to another.

The following is the classification of the Kajamans of the Belaga district, Upper Rejang river, Sarawak. The generic term *song* means *end* or *termination*, as e.g.:—*song irang*—shoots of bamboo.

1. *Song bila*—a fret-work pattern on the slope.
2. *Song ikang*—hooks or projections on the slope.
3. *Song bang*—slope not fretted nor produced into hooks and projections but perfectly plain, or excised into a series of short concave curves.
4. *Song but*—slope rounded and sometimes sharpened into a cutting edge.
5. *Song batong*—fret-work at intervals all along the blade.
6. *Song belubong*—an identical pattern on both sides of the blade.

Of the two *parang ilang* illustrated, that on the left (*a*) is by this classification a *song ikang*, the other (*b*) is a *song bang* of simple type. The Peng Kayan (a tribe of the Mahakkam river, Dutch Borneo) name for this however is *song apony*, whilst the Leppu Tau Kenyahs of the Batang Kayan river, Dutch Borneo, give a name to the more ornate type of *song bang*, which means swallow's wings.

The varieties *song bila* and *song ikang* are not always readily distinguishable. In the Baram district the word *bila* seems to be used instead of *song*.

The Sarawak Museum has a fine series of these weapons, illustrating all the above-noted variations.

The anterior edge of the shoulder is frequently provided with a pair of hook-like projections (*ikang*), constituting a sort of rudimentary finger-guard, the

hooks when present are part of a dragon design incised on the shoulder and represent the horns of the dragon.

The handle is usually made of stag's horn, but occasionally of wood; the stag's antler is cut through at the burr, the beam and the brow tine are cut short; the cut ends are then hollowed out, and the blade of the *parang* is inserted into the beam, and a long tuft of dyed goat's-hair (*ijeh*) is fastened with *dammar* in the cut end of the burr, which is smoothed down, and a shorter tuft in that of the brow tine; both burr and brow tine are elaborately carved with a complicated dragon and anthropomorphic design, and constitute the head of the handle. The beam forms the grip of the handle and is served with plaited rattan or wire; the insertion of the blade into the handle is concealed by a thick ring of *dammar*, into which is frequently stuck a silver coin or stud. The head is further decorated with short tufts of hair inserted into small holes which are bored for the purpose. Such a type of handle is shown in specimen (*a*). In the *Mahakkam* river another type of handle is more frequently met with; in this, the blade is inserted into the smoothed-down burr, and the cut ends of the beam and of the brow tine form a Y-shaped head, carved and decorated with hair: specimen (*b*). In a third type of handle, confined also to Dutch Borneo, the blade is inserted into the beam, but the burr and brow tine are so carved as to form a right-angled crutch.

The sheath, which corresponds roughly in shape to the blade, is made of two grooved slabs of wood tightly bound together by four or five lashings of rattan or wire: the rattan lashings are generally plaited in a very complicated manner, and the term "*Katong evok*," meaning the twistings of a whirlpool, is applied to them; under the lashings are inserted tufts of hair generally red and white arranged alternately (*bok say*). Between the first and second lashings on the outer side of the sheath there is almost invariably a pointed plaque of wood, cut out from the body of the sheath, or if of bone, lashed to the sheath; this is known as the *belilap*, and is either elaborately carved with the dragon design or decorated with hair; a strip of skin covered with hair passes under it round the sheath. The interspaces between the other lashings are sometimes occupied by carvings, or carved pieces of bone are let into the sheath. Sometimes the point of the sheath is closed by a stop of bone, the *sibong*. The inner side of the sheath, which is quite plain, has a bark pocket, the *apis*, attached to it; the *apis* contains a small knife, the *nyiu*, with a long handle; to the outer side of the *apis* is frequently sewn a strip of bead-work. Threaded through the *apis* and under the strip of skin encircling the sheath is the sword-belt or *blavit* of plaited *rattan* covered with cloth or bead-work; one end of the *blavit* terminates in a loop, the other end is knotted to form a toggle, the *skabat*. Sometimes the toggle is elaborately carved from a piece of rhinoceros horn or from the casque of the solid-casqued hornbill *Rhinoplax vigil*.

2. *Niabor*.—This is the characteristic Sea-Dyak *parang*, the others mentioned below are of quite recent origin and owe their shape to Kayan or Kenyah influences. The blade of the *niabor* (Plate XVI, upper right) is generally about 60 centimetres long, but a specimen in the Sarawak Museum measures 90 centimetres. The

back and edge both have a pronounced anterior curvature and pass insensibly to the point; the blade is broadest near the point, and gradually tapers proximally until the edge suddenly ceases at some distance from the handle; midway between this point and the insertion of the handle projects a large finger-guard, the *kundieng*, a feature which is entirely diagnostic of this type of weapon. Distal of this finger-guard, the anterior border of the blade is squarely emarginate, and the space is known as the *sangau*; proximal of the finger-guard the blade is rounded or polygonal in section, and in reality constitutes part of the handle; this part of it is known as the *tamporian*.

The blade is rarely ornamented, occasionally however a groove runs along the posterior border on both sides, from the *tamporian* to near the point. The handle is carved from stag's horn or wood; in the former case the same part of the antler is used as in the *parang ilang*, and the blade is inserted into the cut end of the beam; the head of the handle is much flattened laterally, and the brow tine is whittled away and forms a very acute angle with the beam; the burr is carved into a small knob. A phyllomorphic pattern is carved on the head of the handle. The following are the names of the usual patterns:—*Cantok resam* (shoots of *Gleichenia dichotoma*), *telingai* (scorpion), *entadok kaul* (caterpillars interlocking). The grip is served with rings of metal known as *grunieng*. No hair is ever attached to the handle or sheath. The sheath calls for no special notice.

3. *Langgai tinggang*.—This, another Sea-Dyak *parang* (Pl. XVII, upper r.), is practically a *niabor* with the handle of a *parang ilang*. The term *langgai tinggang*, meaning the longest tail-feather of a hornbill, is applied to this weapon by reason of a broad groove which runs along the posterior part of the blade on each side, and which is fancifully supposed to be feather-like in appearance; this groove runs across to the anterior border just below the rudimentary finger-guard. This finger-guard is not a derivative of the *kundieng* of the *niabor*, but is a copy of the *ikang* of the *parang ilang*, which, as already shown, constituted part of a dragon design; the Sea-Dyak term *crowit* or hooks shows that this has no connection with the *kundieng*.<sup>1</sup> Each side of the shoulder is incised with a phyllomorphic design, such as those given on the preceding page. The sides of the broad groove running along the blade may be bordered with a simple scroll pattern, *entadok*, or caterpillar.

The handle of a *langgai tinggang* differs in nowise from that of a *parang ilang*. The sheath is also similar except in shape.

4. *Jimpul*.—The *jimpul* is of quite recent origin, i.e., within the last thirty years, and may be considered as a hybrid between the *parang ilang* and the *langgai tinggang*. The blade (Pl. XVI, lower r.) has flat sides and both back and edge have a strong anterior curvature, thus resembling the two preceding types of *parangs*. The back and edge however do not pass insensibly to a point, but there is a short

<sup>1</sup> I have, however, a drawing by Dr. Hiller, of Philadelphia, of a *langgai tinggang* with a *kundieng* instead of *crowit*, but it is the only example of such a variation that has ever come to my knowledge.

and abrupt slope. The blade at the commencement of the slope is very broad, the difference in breadth between this point and at a point near the handle being as much as 2·5 centimetres. Hooks and projections (*krowit*) or a fret design occur on the slope, and sometimes for a short distance along the back; two or three grooves run along the posterior part of the blade on each side, and each side of the shoulder is incised with a phyllomorphic pattern. A rudimentary finger-guard (*krowit*) of the same nature as those of the *parang ilang* and *langgai tinggang* is generally present; in the specimen illustrated the hooks constituting this finger-guard constitute part of the phyllomorphic design (*telingai*) incised on the shoulder of the blade, but this is unusual, for as a rule the finger-guard being slavishly copied from a *Kayan* model<sup>1</sup> as in the *langgai tinggang*, bears no sort of relation to the design on the shoulder of the blade which is not copied from a *Kayan* model.

As the Sea-Dyaks have now taken to making the *parang ilang* themselves, embellished with degraded copies of *Kayan* designs, it is not surprising to meet with specimens of the *jimpul* similarly ornamented, but it should be remembered that phyllomorphic designs are essentially the characteristic designs of the Sea-Dyak men,<sup>1</sup> and a foreign influence is to be suspected when a zoomorphic or anthropomorphic design is encountered in the decoration of their *parangs*.

The handle of the *jimpul* needs no description, being a direct copy of the *parang ilang* handle. The sheath similarly is copied from that of the *parang ilang*.

5. *Bayu*.—The *Bayu* is also a Sea-Dyak *parang* of modern origin. It is a modification of the type of *parang ilang*, known by the Kajamans as *song but*; in the *song but* (p. 221) the slope is rounded and frequently sharpened into a cutting edge; the inner side of the blade is, however, concave and unornamented the outer side is convex and ornamented with a pattern along the posterior border. The *bayu* (Pl. XVI, lower r.) is sharpened along the back as far as the shoulder, so that the blade in section is oval, the pattern is identical on both outer and inner aspects and runs down the centre of the blade, not along the posterior border only. In the specimen illustrated, the ornamentation of the blade consists of two broad and two narrow grooves running from the shoulder nearly to the point, and on the shoulder of incised lines and brass studs. The edge is nearly straight, but the sharpened back has a slight convex curvature near the point, and the blade is here broader than at any other point.

The handle and sheath are of the usual *parang ilang* type.

The following are the Sea-Dyak terms for the various parts of a *parang*:—Handle, *ikil*; ring of *damar* concealing insertion of blade, *balut*; finger-guard, *krowit*; incised lines on blade (*Kyan, karan*), *kowal*; triangular panel on outer side of sheath (*Kyan, belilap*), *tandup*; bone stop at end of sheath, *sakum*; lashings of sheath, *kowit*; hair, *jabor*; belt, *supei*.

<sup>1</sup> The women weave zoomorphic designs into their cloth, but the men do not even know the names of the patterns, much less how to reproduce them.

6. *Pakayun*.—This is the very characteristic *parang* of the Muruts, a tribe inhabiting parts of Northern Borneo. The long, curved, cutlass-like blade (Pl. XVII, upper l.) measures 60–65 centimetres<sup>1</sup> in length and about 3 centimetres in breadth; it is of almost uniform diameter throughout. The back is slightly shorter than the edge, so that there is a short slope. The back near its termination is occasionally bevelled for a short distance. The blade is never ornamented. The handle is invariably made of wood, and the head is peculiar and distinctive in shape. It may be compared with the Y-shaped handle of stag's horn of the Mahakkam river *parang ilang*; the blade is inserted into the stalk of the Y, corresponding to the burr of the antler, and the limbs of the Y, corresponding to the beam and brow tines of the antler, and forming the head of the handle, are curved forwards (*i.e.*, downwards, if the *parang* is held in the natural way with the back of the blade uppermost); the space between the limbs of the Y is filled in with a carving which may extend, as in the specimen exhibited, far beyond the ends of the limbs of the Y. The handle of the specimen illustrated is of rather an ornate nature, more usually the carving is simpler and less extensive. The grip of the handle is supplied by a cylinder of brass expanding at the insertion of the blade into a circular lip, the *umbo*, which serves as a finger-guard. This cylinder rarely extends up to the point of divarication of the limbs of the Y, and the interspace is covered by plaited rattan.

The sheath as usual is made of two slats of wood bound together by rattan, wire, or strips of tin; the spaces between these bindings are occupied on the outer side by geometrical designs. To the inner side is attached a bark pocket decorated with hair.

7. *Parang pedang*.—The *parang pedang* or *pedang* is used by the Malays and Milanos (a coastal tribe that has embraced Islam), chiefly for such purposes as the felling of jungle or the splitting-up of the logs of the sago palm. The blade (Pl. XVII, lower l.), which measures in length about 60 centimetres,<sup>1</sup> is very strongly curved, very broad in the distal third, measuring as much as 6·5 centimetres, and tapering rapidly to the point of insertion into the handle. The back passes insensibly to the point so that there is no slope, and the edge runs up almost to the handle, so that a shoulder is not distinguishable. The blade is quite free from ornamentation. The handle, the shape of which is characteristic of this and of the two *parangs* described below, is invariably made of wood. The head of the handle is formed by a forwardly directed knob; the under surface of the knob is concavely curved, and runs into the grip; the upper surface is convexly curved, and is transversely grooved, so that a varied moulding is produced; the sides of the knob are flattened. The grip is served with plaited rattan. The sheath is quite simple in character.

8. *Latok*.—Used chiefly by Malays and Milanos, though introduced into other tribes comparatively recently.

<sup>1</sup> These measurements refer to the specimens figured, which are all deposited at present in the Pitt-Rivers Museum, Oxford.

The chief characteristic of this *parang* is the open angle which the shoulder of the blade and the handle form with the rest of the blade. In the specimen illustrated (Pl. XVII, lower r.), the blade measures from its tip to the distal point of the shoulder 52 centimetres, and the length of the shoulder is 6 centimetres. The greatest breadth, 5·5 centimetres, is near the point, the smallest 2·5 centimetres at the angle of the shoulder. The back is a trifle shorter than the edge, and runs in a very steep and curved slope to the point; the back is very thick so that in its middle the blade is wedge-shaped in section. The shoulder is cut square, but may be polygonal in section or even rounded; in the Milano *sadap*, a variety of *latok*, the shoulder is octagonal in section. The handle is of the same type as in the *parang pedang*, i.e., the head is formed by a forwardly projecting knob of wood, and the upper border of this knob is "moulded" by transverse grooves. The grip is usually served by wire or plaited rattan, but sometimes, as in the specimen illustrated, by silver rings elaborately decorated with geometrical and phyllo-morphic designs worked in *repoussé*.

The sheath, which is quite straight, does not enclose the angled shoulder; the end is usually cut square.

The *parang*, which is used largely for agricultural purposes, is grasped by the handle and shoulder of the blade in both hands, and is then a highly effective chopping implement.

9. *Buko*.—This is the *parang* used by the Land-Dyaks; it differs principally from the *latok*, by its smaller size and elaborately carved handle. The blade (Pl. XVII, lower r.) measures from tip to distal point of shoulder about 45 centimetres, the shoulder is 7 centimetres long and rectangular in section; the greatest breadth of the blade is 4 to 4·5 centimetres; otherwise the blade is exactly similar to the *latok*. The handle is of the type described for the two preceding *parangs*, but the head is elaborately carved in deep relief; the pattern is supposed to represent the leaves of a wild mango, *graium*. The handle of the specimen exhibited is characteristic of the Betah Land-Dyaks of the Quop river, a branch of the Sarawak river; the Bennah of the head-waters of the Sarawak river make a much smaller handle, the Sempok a much larger handle, whilst the Pinyawa of the Samarahan river do not carve the head of the handle at all, and shave down the upper border of the projecting knob till in side view the head appears triangular. The grip is served with rattan.

The sheath is straight and does not enclose the angled shoulder; the mouth of the sheath is carved in deep relief with a phyllo-morphic design, and the end of the sheath is perforated with small holes into which are fixed, by wedges of wood, tufts of hair. The two slats of wood composing the sheath are bound together by loops of plaited rattan—*burad*; *burad patung* is a 5-ply loop, *burad kiring* a 7-ply loop, *burad tipiris* a 9-ply loop, *burad brad bodad* a 11-, 13-, 15-, or 19-ply loop. The belt known as *taris*, is made of the lining of the sheathing leaves of a palm.

10. *Pandat*.—The *pandat* is the war *parang* of the Land-Dyaks; it is never used in agriculture or handicrafts as is the *buko*. It is characterised (Pl. XVI,

upper l.) by the lack of a proper handle, the elongate and angled shoulder serving the purpose: a hole is bored through the shoulder of the blade in an antero-posterior direction nearly in the middle, and through this is inserted a short iron bar, the *sekak*, forming a cross-piece; the shoulder terminates in a sharp point, capped by a piece of horn; the surface of the shoulder, which is rectangular in section, is covered with tin-foil or with brass, and some hair is attached to the back. The portion of the shoulder proximal of the *sekak* is grasped, the forefinger passing over the anterior half of the *sekak*. The back of the blade in the specimen exhibited is longer than the edge, and the oblique end so formed is cut with a V-shaped notch forming a re-entering angle; this arrangement is characteristic of the Sidin Land-Dyaks; sometimes the blade and edge are of equal length, in which case the limbs of the re-entering angle are equal in length; or the limbs of the re-entering angle may be produced into short hooks or projections, and brass studs driven into the blade near its termination; this arrangement is characteristic of the Bennah Land-Dyaks. The sheath is straight and does not enclose the angled shoulder; its outer aspect is decorated with grooves in low relief forming geometrical designs, and with phyllomorphic designs; the designs may or may not be filled up with tin-foil; the phyllomorphic design at the end of the sheath occurs on both sides.

#### SYNOPTICAL KEY OF *Parangs*.

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DESCRIPTION.	NAME.	PLATE.
A. Sides of blade not flat ... ... ...	<i>Parang ilang</i>	XVI, lower l.
B. Sides of blade flat.		
a. Blade double-edged ... ... ...	<i>Bayu.</i>	XVI, lower r.
b. Blade not double-edged nor angled.		
a'. Blade without slope.		
a''. Handle not ornamented with a design.	<i>Parang pedang</i>	XVII, lower l.
b''. Handle elaborately ornamented.		
a'''. Blade with prominent finger-guard.	<i>Niabor.</i>	XVI, upper r.
b''''. Blade without prominent finger-guard.	<i>Langgai tinggang.</i>	XVII, upper r.
b'. Blade with slope.		
a''. Blade long and narrow ... ...	<i>Pakayun.</i>	XVII, upper l.
b''. Blade broader ... ...	<i>Jimpul.</i>	XVI, lower r.
C. Blade angled.		
a'. A wooden handle.		
a''. Greatest breadth of blade exceeding 5 cm.	<i>Latok.</i>	XVII, lower r.
b''. Greatest breadth of blade not exceeding 5 cm.	<i>Buko.</i>	XVII, lower r.
b'. No handle ... ... ...	<i>Pandat.</i>	XVI, upper l.

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## DISCUSSION.

Mr. H. BALFOUR said:—Anthropologists will feel much indebted to Mr. Shelford for having laid down this classification of Bornean swords. In addition to the interest attaching to the subject, there will be practical application for his classification, since the curators of museums will now be able to label and describe correctly the weapons from this region. Too often one sees in museums such labels as “Dyak sword from Borneo” attached to specimens as the only information offered to the public, and too frequently the weapon is neither a Dyak one nor a sword, and moreover Borneo is an extensive region in which marked local distinctions are apparent, which should be specified. It is not always the fault of the curator, who very frequently has none but the vaguest information sent to him. Mr. Shelford’s scientific classification will, I am sure, be welcomed by all who aim at the proper systematic arrangement of collections comprising the particular weapons and tools with which he deals. I should like to ask Mr. Shelford to what extent the *parang ilang* is used as a weapon, and what are the peculiar cuts which render this unique form of blade efficient. It seems as though a direct cut at right angles to a surface would not be very effective, and a diagonal cut would tend to glance off if the concave surface of the blade were towards the object slashed at. On the other hand, it would seem that such a cut with the concave side towards the object would be dangerous and effective, as the tendency of the blade would be to bury itself deeply in this case. Similarly, I should like to be informed as to the correct use of the very awkward-looking *latok* and *pandat*. For a downward cut these appear to be highly inefficient, as the balance seems to be all wrong, throwing a great strain upon the wrist. They are well balanced for an *upward* cut, but this would perhaps not be a very effective form of attack. In regard to the forms of decoration, I should wish to ask Mr. Shelford whether it can be ascertained to what extent the patterns were originally intended to represent, the objects whose name is associated with the designs, or, on the other hand, whether those names have been given to the patterns merely because of a fancied resemblance to natural objects arrived at accidentally in the process of making variations upon existing designs, which in the first instance were not intended to represent those objects. Patterns may acquire names in either manner, and it is important to record when possible the manner in which a particular name has become associated with a given pattern.

Mr. SHELFORD replied that the *parang ilung* is used with a glancing cut with the concave surface towards the object, and makes in this manner a deep and effective cut. The *latok* and *pandat* are not used for an upward cut, but for a downward one, in which both hands are used. It is impossible to determine for certain whether the names of the patterns are derived from an original attempt to represent the objects whose names they bear now, or whether the names have been given in consequence of real or fancied resemblances arrived at accidentally during the process of varying existing patterns.

## THE COLOUR VISION OF THE NATIVES OF UPPER EGYPT.

By W. H. R. RIVERS, M.D.

[PRESENTED 25TH JUNE, 1901.]

THE starting point of the work to be described in this paper was an investigation carried out by Mr. D. Randall-MacIver in the winter of 1899–1900. Fifty natives of Upper Egypt were tested by Holmgren's method. Wools were used, to each of which a numbered label had been attached, so that a record could be kept of those chosen. A system of recording was adopted by means of which not only the wools actually matched, but also those compared even transiently with the test-wool were noted. Thus, a record would read as follows:—

Red test, p. 102, pp. 104, m. 20, 2, 16, pp. 9, 102.

This would mean that the native under examination had first picked up, and transiently compared with the test, the wool numbered 102; he had then deliberately compared No. 104 with the test but had rejected it as not matching; he had then matched three wools numbered 20, 2 and 16 respectively, and had finally compared and rejected the two wools numbered 9 and 102.

By means of a record of this kind, I was able to reproduce in England in detail the behaviour of natives who had been tested by Mr. Randall-MacIver in Egypt.

The same seven test-wools were used as in my work in Torres Straits<sup>1</sup> and elsewhere, viz., bright red, bright green, Holmgren's pink test, Holmgren's pale green test, yellow, blue and violet, usually in the order named.

On going through Mr. Randall-MacIver's records, it was obvious that many of the natives were perfectly normal while others showed exactly the same kind of behaviour which I had found in Torres Straits, viz., they tended to confuse green with blue and blue with violet, and Holmgren's pale green test was matched or compared, not only with yellowish-green or bluish wools of the same degree of saturation, but occasionally even with faintly pinkish wools. They tended to match wools according to their similarity in saturation rather than according to their similarity in colour-tone.

Among the fifty natives there were two or three individuals who appeared almost certainly to be examples of the ordinary form of red-green blindness, their matches and comparisons being typical of this condition, or of considerable weakness of the red-green sense. There were a number of other natives who,

<sup>1</sup> *Rep. Camb. Anthropol. Expedition to Torres Straits*, vol. ii, p. 49, 1901.

if they had been Europeans, would almost certainly have been regarded as examples of weakness of the red-green sense. These individuals matched or compared pink, violet and purple wools, and they also put brown wools with the bright red test. They did not, however, confuse pink and blue wools nor did they ever confuse red and green, and, taking their matches and comparisons as a whole they did not seem to me to be of the kind made by people with defective red-green sense. It seemed to me possible that the mistakes of these people might have been due to an exaggeration of a tendency of which I had observed traces in Torres Straits and elsewhere; a tendency to put together wools to which the same name would be applied. It seemed desirable to supplement Holmgren's method by other tests for colour blindness and also to study the colour-matches made by these people side by side with an investigation of the colour-nomenclature.

By the kindness of Mr. Randall-MacIver and the late Mr. Anthony Wilkin, I was enabled to do this in December, 1900, and January, 1901, at El Amrah close to Abydos in Upper Egypt. The natives examined were all peasants of Upper Egypt employed in the excavations in which Mr. Randall-MacIver and Mr. Wilkin were engaged. They nearly all came from the villages of Quft, Ballas and Sheikh Ali, a few natives of the village of El Amrah being also examined. They were typical fellahin from the same district of Upper Egypt and were fairly homogeneous, though a few probably had some strain of Sudani blood.

I first tested the natives with Holmgren's wools. I then obtained the names for colours in various ways. This was followed by the test for colour-blindness which has been recently recommended by Nagel.<sup>1</sup> This consists of cards on which are printed circles of dots in various colours, especially chosen to deceive the colour-blind. The methods recommended by Nagel were somewhat too complicated to allow me to use them with these people, and I was obliged to be content with asking the names of the variously coloured dots.

I then used Lovibond's Tintometer, which I have found to be a valuable means of detecting colour-blindness, and I also used this instrument to determine the thresholds for red, yellow and blue as in my work in Torres Straits.<sup>2</sup>

In examination of the colour sense I am always careful to test with Holmgren's wools before dealing with the names of colours, in order that the influence of language on the process of matching may be minimized as much as possible, but for purposes of exposition it will be convenient to begin with an account of the language employed for colour.

#### *Colour Nomenclature.*

I obtained the names of thirteen coloured, black and white papers sold by Rothe of Leipzig, supplemented by dark and light grey papers and six brown papers. I also asked the names of various wools, especially in the search for names

<sup>1</sup> *Arch. of Ophthalmology*, vol. xxi, p. 154, 1900.

<sup>2</sup> *Op. cit.*, p. 70.

for brown, and I occasionally inquired the names of the colours of natural objects, articles of clothing, etc.

My thanks are due for much help in this part of my work to Mr. Randall-MacIver and to Mr. J. E. Quibell. Prof. A. A. Bevan has also kindly looked through my list of colour names, and I am indebted to him for several suggestions.

I have adopted with one exception the method of writing the Arabic words which is used in Völlers' *Grammar of the Modern Egyptian dialect of Arabic*, translated by Mr. F. C. Burkitt. The exception is in the use of the letter Qâf, for which Völlers uses the sign „. As pronounced by the natives with whom I had to do, this consonant was like a very hard "g," and I have expressed it by the letter "q."

On asking the names of the various coloured papers and wools, I was very frequently given the names of garments or materials, such as *ħarîr*, silk; *gûkkh*, cloth; *'abaiyä*, cloak; *qomâsh*, cloth; *tôb*, women's dress; *baftä*, linen cloth; *quftân*, gown; *sedéri*, waistcoat-like garment; *libdä*, felt.

Often these words were given alone, but they were also frequently combined with colour names, the papers or wools being called *ħarîr ahmar*, *gûkkh iswid*, *'abaiye ṣafra*, *tôb abjad*, *baftä samra*, *quftân akhdar*, etc.

In addition to the recognized terms for colour of the Arabic language, numerous other words were used. The former may be given first.

*Aḥmar*, fem. *ħamra*, was used for red and for colours containing a red component, thus it was used for all shades of red and purple, and occasionally for orange and violet. In the case of the latter colours, it was sometimes qualified as in the expressions *ħamra mush ħamra qawi* (not very red), *ħamra bu ṣafar* (red with yellow), *aḥmar abjad shwéyä* (a slightly white red), *aḥmar fataḥ* (light red) in the case of orange and *ħamra abjad* (white red) and *labanî aḥmar shwéyä* (slightly milk red or blue red) in the case of violet. *Aḥmar* or *aḥmar shwéyä* were also used for reddish browns. *Aḥmar* was never used for colours which had not an element of red in them.

*Asfar*, *ṣafra*, was used somewhat less definitely. Yellow was nearly always called by this name which was also often used for orange. *Asfar* was also used for green by one or two individuals who were certainly not colour-blind. It was very frequently used for brown either alone or in such forms as *asfar shwéyä*, *nusṣ asfar* (half yellow) and *asfar mush ketîr* (not very yellow). It was also often used for faint reds, thus, in Card III of Nagel's test, about half the individuals called the more saturated pink *ħamra*, and the less saturated *ṣafra*; in these cases I covered up the card so that only one of the less saturated discs could be seen and most then called this disc *ħamra*, but when a less saturated pink was seen together with a more saturated disc of the same colour, there was a very strong tendency to call the former *ṣafra*. The same happened with a few individuals in the case of Card XII. *Asfar* was also used for Holmgren's pale green test wool. There seemed to be a tendency to use the word *asfar* as a term for light, unsaturated colours, especially in contrast to red.

*Akhdar, khadra*, was used less definitely than *asfar*. It was the common term applied to green of all shades. It was used for Rothe's blue-green paper by about half the individuals questioned, and it was very often applied to blue and occasionally to indigo. It was also used several times for browns which had no element of green in them, and by a few individuals for dull black and dark grey. There seemed to be a distinct tendency to use this word for all darkish colours other than red and yellow.

*Azraq, zarqa*, was used most often for black. Rothe's indigo and violet papers were occasionally given this name, which was never applied to the light blue paper or to a blue wool. Blue-green was only once called *azraq*, but this word was used by six individuals for brown. With Nagel's cards *azraq* was used for the darkest dots and seems to have been regarded as a term for black and for very dark colours. Black was once called *azraq fami*, charcoal blue or charcoal black.

*Iswid*,<sup>1</sup> *sôda*, was used for black, dark grey, dark brown, indigo, and violet, and occasionally for fairly light blues. By one individual Rothe's indigo paper was called *sôda khâlis* (perfect black). From the way in which they were employed by the people in question, this word and *azraq* might be regarded as synonyms. It almost seemed as if *azraq* were used for darker colours and shades than *iswid*, for in Nagel's Card IX, some individuals called the darker dots "*azraq*" and the lighter dots "*iswid*."

*Abjad, bêda*, was only used for white, light grey, and for very light colours. It was often used for Holmgren's light green test wool, and still more often for the violet test wool. Light browns were also given this name.

*Asmar, sumra*, occurred very rarely. One man called blue, "*asmar*," and three gave this name to dark grey or black. It was not used for brown by a single individual.

In addition to the above colour terms, a large number of others were used which were formed by adding "î" to the names of various objects. I will give these as nearly as possible in the order of the frequency with which they occurred.

*Kohâli*, derived from *Kohl*, the antimony dye with which the eyes are painted, was very commonly used for black, indigo, violet, and also for dark grey and dark brown. It was used in exactly the same way as *iswid* and *azraq*. *Ikhal*, applied to the same colours is, no doubt, another form of the same word.

*Lâbânî*,<sup>2</sup> derived from *lâbân*, milk, was the word most often applied to blue. It was used by about half the people tested for blue-green and occasionally for green. It was also applied to both indigo and violet and less frequently to brown and grey. It was twice used for pink by individuals who were not colour-blind. It was often used for the blue, grey, and light green dots in Nagel's cards.

*Ighbash*, or more commonly *ghabshî*, was very frequently used for grey and for light colours, especially for those of Nagel's cards.

<sup>1</sup> This word was pronounced very diversely. I heard it called *iswid*, *iswad*, *uswid*, *uswad*, *eswad*. The feminine was also called *sôdi*, quite as often as *sôda*.

<sup>2</sup> This word was perhaps more often pronounced *lebéni*, *libéni*, or *ilbéni*.

*Ighbar* and *ghabrî*, derived from *ghubr*, dust, were also frequently used in the same way.

*Etrâbî*, derived from *turâb*, dust, was given for grey, black, and brown, and rarely for blue and blue-green.

*Bunnî*, derived from *bunn*, coffee bean, was often used for brown. It was also applied to grey and violet.

*Safî* or *sâfî*, meaning clear or transparent, was occasionally given for blue, green, and grey, and once for brown. It was also used to qualify other words as *lăbünî safî* for blue-green.

*Samdwî*,<sup>1</sup> derived from *samâ*, sky, was used by a few men for light blue and once for indigo. Brown was once called *samâwî ghâmid* or *'amiq*, *'amiq* (dark sky colour).

*'Asalî*, from *'asal*, honey, was rarely used for orange, brown, and pink.

*Ghuslî* (? derivation) was used occasionally for red, orange, and violet.

*Qahwî*, from *qahwü*, coffee, was used occasionally for red, orange, and yellow. It was not applied to brown.

*Tarâbîshî*, from *tarbûsh*, fez cap, was used occasionally for red, sometimes alone and sometimes combined with *aħmar*. It was once applied to grey.

*Manawîshi* was used by a few individuals for both pink and blue.

*Khoshaq* was used occasionally for brown and once or twice for pink.

*Rusâsî*, from *rusâs*, lead, was used for brown and grey and once for green.

*Hadidî*, from *hadid*, iron, was used once for grey.

*Zibdî*, from *zibda*, butter, was used twice for grey.

*Qulali*, from *qulla*, pl. *qulal*, earthen waterbottle, was used for yellow.

*Ramlî*, from *raml*, sand, was once used for brown.

Other words were occasionally used which may be corruptions of foreign words ; thus, brown was once called *smanti*, probably from cement, and grey was once called *shagelat*, possibly chocolate. Yellow was once called *karantina asfar*, quarantine yellow, by a man who had worked on the Suez Canal. White and black were occasionally qualified by *Madrasî* and the words *Malakan* or *Manakan* (American) were occasionally used, as when a grey paper was called *Manakan asmar*. Two men called blue *sînî*, Chinese.

In the language employed for colour by these peasants of Upper Egypt, we find exactly the same features as those which characterize primitive colour nomenclature in other parts of the world. There was a very definite word for red, *aħmar*, which was not only applied to objects which we should definitely distinguish as red, but also to colours such as orange, purple, violet, and brown, which contain a red element. There was a somewhat less definite term for yellow, *asfar*, which was also used for orange and brown and was occasionally applied to green and to faint red. The word for green, *akhdar*, was still less definite, being very often applied to blue, violet, grey, and brown. There was no definite word

<sup>1</sup> Magnus states (*Untersuch. ü. d. Farbensinn d. Naturvölker*) that this word has been borrowed from Arabic by the Berbers, who use it as a term for blue.

for blue. The word, *azraq*, usually regarded as the Arabic term for blue, was never used by these people for light blue and was applied by them more frequently to black than to an indigo blue.<sup>1</sup> This word and the proper Arabic term for black, *iswid*, were used indiscriminately for black, blue, and violet, and also for dark brown. Other words as *kohalî*, *ighbar*, and *etrâbi*, were used both for black and blue or for grey and blue. The nearest approach to a word for blue was *lăbăni* milk colour, which was, however, often used also for green, grey, and brown. The word *samâwi*, derived from the colour of the sky, was only used by two or three individuals and was also used for brown.

The decreasing definiteness in the nomenclature for colour as one goes from red through yellow and green to blue, was as marked in these peasants of Upper Egypt as it is in the Papuans of Torres Straits and in so many other savage and semi-civilized races.

Another feature of the Egyptian language for colour is the absence of a word for brown. The proper Arabic term for brown, *asmar*, was never once used for this colour, though occasionally applied to blue and grey. It is interesting that Mlle. de Claury<sup>2</sup> found that the natives of Algeria seemed also to be unacquainted with “*asmar*” as a word for brown and applied to brown objects the words for black or yellow.

As I have found in other languages, there was more variety in the terms applied to brown than to any other colour, over twenty different terms being given to brown papers and wools. The word most commonly used was *ahmar*. *Asfar* had the second place. The word which came third in order of frequency was *bunnî*, coffee-berry colour. This word is given as meaning brown in Voller's *Glossary*, and is certainly the nearest approach to a word for brown among the people with whom I had to do, but it was very far from being generally used as a term for brown in the way that *ahmar* was used for red and *asfar* for yellow, and only by one man was it used with any consistency for all browns, most people calling one brown *bunnî*, another *ahmar*, a third *iswid*, and so on. *Bunnî* was also applied to grey and violet as well as to brown, and cannot be regarded as a distinctive name for the last colour.

A feature of which I have observed indications in other languages, came out in a very marked way in the nomenclature of these people, viz., the tendency to use words denoting differences of colour-tone for differences of shade, *i.e.*, of luminosity. There was a tendency to use *akhdar* not only for green, but also for all colours (except red and yellow) of a certain degree of darkness. There was a similar tendency to use *azraq* and *iswid* for all very dark colours.<sup>3</sup>

<sup>1</sup> It is probable that “*Bahr el azraq*” should properly be translated “the dark Nile,” and that when we speak of “the Blue Nile,” we are employing a term which is due to the tendency to confuse blue and dark in Arabic colour nomenclature.

<sup>2</sup> *Bull. de la Soc. d'Anthropol. de Paris*, t. ix, p. 698, 1886.

<sup>3</sup> This tendency is shown in the epithets commonly applied to donkeys. Thus very dark donkeys may be called “*azraq*,” while lighter donkeys are spoken of as “*akhdar*.”

The tendency to use names for different colours to denote differences of brightness was most marked with Nagel's cards. In card No. V, there are three dots of the same greenish colour-tone which differ from one another in brightness, giving three shades of one colour. These three dots were very commonly denoted by three different words as *lubānī*, *akhḍar*, *iswid*, or *ighbash*, *akhḍar*, *arraq*. In card No. III, very many individuals called the more saturated pink, *ahmar*, and the less saturated, *aṣfar*, although most, when shown the latter alone, recognized it also as *ahmar*. Nagel's test is especially adapted to bring out this feature of colour nomenclature, and it is possible that I have found this tendency more marked in the Arabic of the Egyptian peasant than in other languages because I was using this test for the first time.

The existence of this tendency to use names of different colours to denote differences of shade is of considerable interest in connection with the colour nomenclature of ancient literature. Gladstone<sup>1</sup> and others have pointed out that Homer used colour-names, or words which became later colour-names, to denote differences of brightness, and supposed in consequence that the colour sense of Homer was undeveloped, but that he had a highly developed degree of sensibility for difference of brightness. The colour nomenclature of the fellâhin of Upper Egypt appears to show exactly the same kind of peculiarity as that noted by Gladstone in Homer, a peculiarity which is far from being associated in them with absence of the colour sense.

#### *Examination for Colour Blindness.*

I examined forty-three men and boys at El Amrah. Some of them were absolutely normal in their behaviour with Holmgren's wools. Others made the same kind of matches with which I had become familiar in Torres Straits and elsewhere, i.e., they behaved normally with the red, pink, and yellow test-wools, but compared green with blue, and blue with violet. With Holmgren's pale green test-wool they were inclined to put wools of any colour, even pink, if very faintly coloured, i.e., they tended to match according to saturation rather than according to colour tone, and the same tendency was found in the matches made with a pale violet test-wool. Owing to the fact that I first met with this mode of matching in Torres Straits, I am accustomed to speak of it as the Torres Straits type.

Two men were definite examples of the common form of colour blindness. One, Ali Ibrahim, began by matching green wools with the red test. He matched Holmgren's pink test with blue and violet; he matched yellow with greenish yellows, blue with greenish blues and violets, and violet with blue and pink wools. On repeating the tests, the same kind of errors were made. He called Rothe's yellow-green paper *hamra*, the red test wool *safra*, and green and yellow wools *hamra*. In Nagel's test-cards, he consistently called the pink dots *kohal*, and the yellow dots *hamra*. He called the 1·5 red glass of Lovibond's Tintometer *khadra*, the 1·0 red glass *safra*, and the 1·0 blue glass *hamra*.

<sup>1</sup> *Studies on Homer and the Homeric Age* 1858, vol. iii, p. 457.

Another man, Ali Ayab, matched red with green, green with brown, pink with blue and violet, Holmgren's green with pink, blue with purple and violet with pink. He made characteristic mistakes in naming the colour of papers, wools, Nagel's test dots, and the tintometer glasses.

Nine other individuals resembled many of those tested by Mr. Randall-MacIver, and made matches or comparisons which, if made by a European, would strongly suggest defectiveness of the colour sense.

Three of these, Mohammed Smain Birias, Smain Hassan and Ahmed Bukr, definitely matched the pink test with violet or purple wools and two of them also matched red and brown. Their other matches were, however, good or of the Torres Straits type, and were not of the kind made by red-green blind individuals. They were able to name all the pink dots of Nagel's test-cards correctly, and none of the names used were suggestive of red-green blindness. They were able to distinguish the glasses of the tintometer readily, the thresholds for red being .40, .40, and .20 respectively as compared with 1.20, 1.20, and .80, the thresholds for blue.<sup>1</sup>

Five others did not actually match the pink test with violet wools but only compared the two colours. One of them also compared violet and brown. Their other matches were of the Torres Straits type, and their behaviour with Nagel's test and the tintometer was absolutely normal.

One other individual, Ali Hassan, was more doubtful. His actual matches were normal, but he compared the pink test with the blue and violet wools in a very suspicious manner. He was, however, able to name Nagel's dots correctly. I put his threshold for red somewhat high, viz. .50, but he almost passed at .30 (7 times in 10). He was one of those who had been tested a year previously by Mr. Randall-MacIver, and from the results of this examination I had put him down as probably having weakness of the red-green sense.

There are several possibilities in connection with these nine individuals. It is possible that they were in some slight degree colour-blind. This seems, however, to me very unlikely; they were able to recognize correctly the colours of the dots in Nagel's test, colours especially chosen to deceive the colour-blind. Further, they were able to recognize very faint glasses in the tintometer, far below the limit at which Europeans with weakness of the colour sense go wrong. I have found that this test is a very delicate means of detecting weakness of the red-green sense; individuals who are able to match Holmgren's wools and to pass Nagel's test, fail to distinguish the red from the blue glasses of the tintometer at certain intensities depending on the degree of weakness of colour vision.

Another possibility is that the defective matches and comparisons were due to the influence of language. The wools they tended especially to confuse were red with brown and pink with violet. They also occasionally matched pink and violet with brown. There is no doubt that all these wools were often given the same name, viz., *akmar*, not only by the individuals in question but by others

<sup>1</sup> See p. 241.

whose matches were in no way suspicious, and I believe that the fact that these colours were confused was largely due to the influence of language, to the tendency to put together wools which the people would be in the habit of associating together on the ground of similarity of nomenclature.

In working elsewhere, I have met with a similar tendency to put together wools which would receive the same name. Thus in Torres Straits, as I have already mentioned, men would often match wools of any colour, but of faint saturation, with Holmgren's pale green test, and on these occasions I have heard them saying to themselves their word for "white" as they picked up the wools. In order to diminish the influence of language as much as possible, it is always my custom to examine with Holmgren's wools before entering on the investigation of the colour vocabulary, and I always scrupulously avoid mentioning the names of colours while explaining the test; but in spite of all precautions, it is impossible to prevent people from thinking of the names of the colours they are choosing and from being influenced thereby.

There is another reason why pink and violet should tend to be matched more readily by these people than by Europeans. I have shown<sup>1</sup> that there is reason to believe that some races have a certain degree of insensitivity to blue, and I shall presently endeavour to show that these natives of Upper Egypt have a similar degree of insensitiveness to this colour. Each of the colours, pink and violet, contain both red and blue. They are confused by individuals with weakness of the red-green sense, because being insensitive to the red element in each, these individuals only see the blue component of each colour. In red-green blindness, the two wools probably appear as two shades or tints of blue. It is obvious that insensitiveness to blue would produce the same tendency to confusion. Both colours would appear more red, and would resemble one another more closely than to the normal eye, and I think it probable that this is a subsidiary factor, or possibly as important a factor as the influence of language, in leading these people to confuse pink and violet.

Whatever may be the true explanation of these defective matches, there is one practical conclusion about which there can be no doubt, viz., that Holmgren's wool test may, in the case of some races at any rate, be wholly insufficient as a means of diagnosing colour blindness. There is little doubt that among ourselves the test sometimes fails to detect the slighter degrees of colour blindness. In savage or semi-civilized races, I believe that Holmgren's test will probably always enable one to detect colour blindness when it exists, chiefly because the concomitant insensitiveness to (or lack of interest in) blue, which is so frequently found in such races, increases the difficulty of matching.

The defect of Holmgren's test, as an ethnographical method, is firstly that a confusion of colours which in a European certainly means insensitiveness to red, may in other races be due to insensitiveness to (or lack of interest in) blue

<sup>1</sup> *Rep. Camb. Anthropol. Exp.*, vol. ii, p. 73.

Secondly, the peculiar defects which characterize the language for colour in nearly all savage and semi-civilized races may be of influence in the process of matching, and may lead to confusions in this process which are in Europeans characteristic of colour blindness.

In addition to the forty-three individuals examined at El Amrah, I was also able, by the kindness of Professor Flinders Petrie and Mr. Mace, to examine at El Arabah ten men who had been tested a year previously by Mr. Randall-MacIver, and had been found to be suspicious. Two of these men were certainly colour blind. One, Erfai, matched red with browns and greens, pink with violets and blues. Holmgren's green test with brownish and pinkish wools, and blue with pink and violets. He called most of the red dots in Nagel's test *akhdar*, and called the darker dots of any colour *ahmar*.

The other, Hamdan Yusuf, made matches which were perfectly characteristic of colour blindness of the ordinary form, but succeeded in naming most of Nagel's dots correctly, though he called one pink *azraq* and another *safra*.

A third man, Smain ab Amad, made matches which were in the highest degree suggestive of red-green blindness. He began by matching reds and greens, but I came to the conclusion that he did not properly understand what he had to do, and on a later trial he matched red correctly. He confused pink, however, with blue and blue-green. He matched Holmgren's green test with both yellow and blueish wools, and matched a blue wool with violet and brown. The latter confusion is not in any way characteristic of red-green blindness, but is of the kind that might be due to the influence of language. He called a pink wool *lubani*, but was able to name all the dots of Nagel's cards correctly. I was not able to test him with the tintometer, and in the absence of this test I was quite unable to make up my mind whether he was colour blind or whether his defective matches were due, partly to the influence of language, partly to misunderstanding of the method. Six of the others made the same kind of matches which I have already fully considered in connection with the people tested at El Amrah. They confused red with brown or pink with violet, or both, and I believe that their confusions were due to the causes I have already considered. One of them, Abadeh Musi, was rather more suspicious than the rest, picking up and comparing a blue wool with the pink test and a pink wool with the blue test, but he only definitely matched pink with violet, and was able to name papers, wools and Nagel's dots perfectly correctly.

The remaining two men tested at El Arabah were normal.

The people examined were too few in number to allow one to say anything definite as to the percentage of colour-blind individuals. At El Amrah I tested forty-three individuals, of whom two were certainly colour blind. Of the fifty individuals, tested by Mr. Randall-MacIver, two were certainly colour blind, while others had possibly some weakness of the red-green sense. Altogether eighty natives of Upper Egypt were tested by Mr. Randall-MacIver and myself, of whom twenty-two were tested by both of us. Of these eighty individuals, four were

certainly colour blind while others were doubtful. This proportion of 5 per cent, is larger than that existing in most European populations, viz., about 4 per cent., and if one takes into account the doubtful individuals, the results seem to indicate that there is a somewhat larger percentage of colour blindness in Upper Egypt than in European races. I have elsewhere<sup>1</sup> shown that colour blindness may be absent, or almost absent, in some races while in others it may apparently be more frequent than in Europe, and I have suggested that the existence or absence of colour blindness may possibly be a guide to ethnic affinities. If future researches show that colour blindness is relatively common in the race of Upper Egypt, one will have advanced one step further in the study of this problem.<sup>2</sup> I am not aware of any other researches on the colour vision of Egyptian races, though a number of observations have been recorded on Nubians.<sup>3</sup> Rabl-Ruckhard<sup>4</sup> quotes de la Renoudière as having examined six hundred and ninety-three Algerian adults of whom 3·4 per cent. were colour blind. This observer only tested by asking the names of colours, and his results must therefore be accepted with caution.

#### *Colour Thresholds.*

I used Lovibond's Tintometer to determine the thresholds for red, yellow and blue, as I had previously done in Murray Island.<sup>5</sup> This apparatus consists of a long box at the end of which are two apertures either of which may be given any degree of coloration by placing before it one of three series of glasses very delicately graded in the three colours, red, yellow and blue. The method was exactly the same as that employed in Murray Island, with one exception, viz., that I began by showing the natives glasses of a high degree of coloration. In this way one began by giving them a good idea of the colours for which they were to look and the strengths of the glasses were then diminished till the colours could no longer be recognized. The threshold was determined when the colour of a glass was correctly recognized four times in five, though very often ten observations were made with the final glass, in which case two mistakes were allowed.

I give the record of one man, Ahmed Aissa, to illustrate the procedure. This man recognized ·20 red four times in five, but was only right seven times in ten observations with the ·15 glass. He was right every time with ·30 yellow, but was quite unable to recognize the ·20 glass of this colour. The blue glass 1·0 he called *iswîl* (black) three times, *akhdar* (green) once, and the fifth time did not recognize that there was any colour on the side in which the glass had been put, but called

<sup>1</sup> *Op. cit.*, p. 94.

<sup>2</sup> It is, perhaps, worth mention in this connection that colour blindness has been found to be somewhat more common among Jews than among the general population of Europe. See *Trans. Ophthalmol. Soc.*, vol. i, p. 191, 1881.

<sup>3</sup> *Zeitsch. f. Ethnol.*, Bd. x and xi.

<sup>4</sup> *Ibid.*, Bd. XII, S. 210, 1880.

<sup>5</sup> *Op. cit.*, p. 70.

the opposite hole *abjad* (white). Since pronounced blues were often called both *iswid* and *akhdar*, I passed these answers and proceeded to test with '80, which he recognized as *lăbăni* four times in five observations. The '60 glass he twice called white and the '70 glass was also called *abjad* (white) five times in ten observations, and I therefore put down his threshold at '80. If I had rejected *iswid* and *akhdar*

*Aḥmed Aissa.*

Red.	Yellow.	Blue.
1·0 <i>aḥmar</i>	1·0 <i>asfar</i>	1·00 <i>lăbăni</i>
·50 „	·50 <i>akhdar</i>	·50 <i>abjad</i>
·50 „	·50 <i>lăbăni</i>	·70 <i>ikhal</i>
·40 „	·60 <i>akhdar</i>	·70 <i>abjad</i>
·40 „	·60 „	1·0 <i>abjad</i> (W)
·30 <i>abjad</i>	·50 <i>asfar</i>	1·0 <i>iswid</i>
·40 <i>aḥmar</i>	·50 „	1·0 „
·40 „	·50 „	1·0 „
·30 „	·40 „	1·0 <i>akhdar</i>
·30 „	·40 „	·80 <i>lăbăni</i>
·30 „	·40 „	·80 <i>abjad</i>
·30 „	·40 „	·80 <i>lăbăni</i>
·20 <i>abjad</i>	·30 „	·80 „
·20 <i>aḥmar</i>	·30 „	·80 „
·20 „	·30 „	·60 „
·20 „	·30 „	·60 <i>abjad</i>
·20 „	·30 „	·60 <i>iswid</i>
·15 „	·20 <i>abjad</i>	·60 „
·15 „	·20 <i>asfar</i>	·60 <i>abjad</i>
·15 <i>abjad</i>	·20 <i>aḥmar</i>	·70 <i>lăbăni</i>
·15 <i>aḥmar</i>	·20 <i>abjad</i>	·70 <i>abjad</i>
·15 „		·70 <i>lăbăni</i>
·15 <i>abjad</i>		·70 „
·15 <i>aḥmar</i>		·70 <i>abjad</i>
·15 „		·70 „
·15 „		·70 <i>akhdar</i>
·15 <i>abjad</i>		·70 <i>lăbăni</i>
·15 „		·70 <i>abjad</i>
·15 „		·70 „
Red ·20.	Yellow ·30.	Blue ·80.

as correct names for blue, I should have had to put the thresholds of these people for blue very much higher than I have done. In Table I, therefore, the figures given indicate the glass next above that which was called white more often than once in five observations. There was a general tendency to call the stronger blue

TABLE I.

NAME.		Red.	Yellow.	Blue.
Mahmud Mohammed ...	...	10	10	60
Mohammed Khudir ...	...	60	40	150
Mohammed Smain Birias	...	40	30	120
Ahmed Aissa ...	...	20	30	80
Mohammed Aissa ...	...	20	30	120
Mohammed Ahmed ...	...	10	10	30
Abdullah abd el Muli...	...	10	20	30
Mohammed abd el Muli	...	15	10	20
Mursi abd el Muli ...	...	15	10	20
Sadik ...	...	40	30	80
Mohammed Hassan ...	...	10	20	150
Hassan Yusuf ...	...	10	20	30
Hassan Abderahim ...	...	40	30	90
Mohammed Hamed ...	...	40	30	90
Ali Agiadi ...	...	40	30	120
Ahmed Bukr ...	...	20	20	80
Ali Hassan ...	...	50	15	80
Mohammed abu Selim	...	10	5	60
Mohammed Ali ...	...	40	40	100
Mohammed Said ...	...	30	50	90
Ibrahim Ibrahim ...	...	40	40	50
Mohammed Musi ...	...	60	50	200
Mohammed Hamed ...	...	40	20	120
Mohammed Ramdan ...	...	20	15	60
Abdullah Mohammed...	...	15	30	70
Smain Hassan ...	...	40	40	120
Average ...	...	28·65	25·96	85·4
Maximum	...	60	50	200
Minimum	...	10	5	20
M.V.	...	14·42	10·5	34·26
M.V. A.	...	·503	·404	·401

glasses *iswid* or *kohalî*, and to call the fainter glasses *lubâni*. The extreme indefiniteness of nomenclature for blue makes it very difficult to know how much importance to attach to these observations, but I think one is justified in supposing that when a glass was called white by these people, the colour was not recognized.

In Table I, I have omitted the decimal points before the numbers of the glasses, so that a threshold of 10 means that the man in question could distinguish .10 according to Lovibond's graduation.

It will be seen from this table that, on the average, yellow was recognized at a slightly lower strength than red. The difference is very slight, but is present in both maximum and minimum, as well as in the average. Blue had to be much more intense than either red or yellow in order to be recognized. I have already said that I only rejected the answers for this colour, either when they failed to recognize that there was any glass at all in the instrument, or when they called the glass *abjad*. If I had also regarded the names *iswid* and *kohalî* (black) as incorrect, the thresholds for this colour would have been very much higher.

The figures in the last line but one give the mean variations of the results for the different individuals from the average result. The figures show that the twenty-six individuals examined differed from each other least in the case of yellow, the colour for which they were most sensitive, and differed most in the case of blue, the colour for which they were least sensitive.

The mean variation may be taken as an index of the degree of variability of the individuals of a group, and in this case it is probably most satisfactory to take the mean variation in relation to the average, and in the last line I have given the figures representing this relation,  $\frac{\text{M.V.}}{\text{A.}}$ . In the case of red, the mean variation was rather more than half the average, in the case of yellow and blue rather more than 40 per cent. of the average.

In the following comparative table I have given the results for the twenty-six natives of Upper Egypt together with those for eighteen natives of Murray Island in Torres Straits and eighteen English men and boys, all being tested by the same instrument in the same manner:—

TABLE II.  
COMPARATIVE RESULTS.

Race.	Red.	M.V.	$\frac{\text{M.V.}}{\text{A.}}$	Yellow.	M.V.	$\frac{\text{M.V.}}{\text{A.}}$	Blue.	M.V.	$\frac{\text{M.V.}}{\text{A.}}$
Egyptian .... .... ....	28·6	14·42	·503	26·0	10·5	·404	85·4	34·3	·401
Murray Island ... ....	17·6	7·66	·435	26·5	9·71	·366	60·0	16·5	·275
English ... .... ....	31·7	22·5	·710	20·5	8·11	·395	36·4	15·1	·415

It will be seen from this comparative table that the *fellâhin* of Upper Egypt resembled the English observers in being less sensitive to red than to yellow. They differed from the Murray Islanders in this respect, but agreed with these people in their marked insensitiveness to blue. The Egyptians seem to occupy an intermediate position between the Englishmen and the Papuans, resembling the former in one respect and the latter in another. The behaviour as regards red acquires some significance in connection with the fact that the cases of marked insensitiveness to red (red-green blindness or red-green weakness) which occur in both England and Egypt were absent in Torres Straits.<sup>1</sup> The existence of colour-blindness in both Egyptians and Englishmen appears to be accompanied by a certain degree of general insensitivity to red as compared with Papuans.

The Egyptian and Murray Island records for blue are not exactly comparable in one respect. The Murray Islanders had no native word for blue, but they had adopted the English word in the form of *bulubulu*, and most of the natives used this word consistently for blue. These people had a word which they used definitely and consistently for blue, and therefore one had every reason to believe that when they saw blue in the tintometer they were able to express the fact.

The use of a "loan" word for blue has made the colour vocabulary of the Murray Islander distinctly superior to that of the Egyptian peasant, and the fact that so many designations were given to blue by the latter makes it very difficult to assign a proper value to their results. I have assumed that these people failed to see the colour when they called it white, but I fully recognize that this assumption does not rest on a very secure basis, and that the results may possibly have been due to lack of interest in, rather than to true insensitiveness to blue. Still the fact remains that the *fellâhin* of Upper Egypt and the Papuans of Murray Island, who have closely similar defects of colour language, also behave in the same way when tested with the tintometer and call a blue glass "white" which to the European eye is strongly coloured, while they are able to give suitable names to red and yellow glasses of about the same degree of coloration, or even lower degrees of coloration, than those at which English observers recognize these colours.

The behaviour of the natives of Upper Egypt, both with Holmgren's wools and with the tintometer, illustrates very well the difficulties which defective colour nomenclature introduces into the objective examination of the colour sense. The observations, however, as a whole point with considerable probability to the existence of a certain degree of defective sensibility to blue as compared with red and yellow and tend to confirm the conclusions at which I have arrived from observations elsewhere, that defective nomenclature for blue may be associated with a certain degree of defective sensibility for this colour.

<sup>1</sup> No case was found in 150 individuals.

The defective nomenclature for colour employed by these peasants of Upper Egypt is of considerable interest in relation to the problem of the connection between colour language and colour sense. I have elsewhere<sup>1</sup> pointed out that any defect of colour sense which has so far been found in savage and semi-civilized races can only partially explain the great defects of colour nomenclature which are found so widely throughout the world. These defects, especially in the nomenclature for green and blue, are found not only in the languages of savage and barbarous people, but in some of the languages spoken in civilized countries.

One of the factors which has been brought forward to explain the defective nomenclature for blue is the absence of blue pigments and of blue objects of interest among many races, and it is probable that this is one of the causes which have contributed to produce the defect. In the case of these Egyptian peasants we have, however, to do with people who are well acquainted with blue objects, and who were often, at the time that I examined them, wearing blue clothes. Further, they are the inhabitants of a country in the ancient history of which blue occupied the most prominent position in decorative art, and yet among these people one finds exactly the same defects of colour nomenclature which are found among the lowest savages and in races totally unacquainted with blue pigments.

In the case of these Egyptian peasants we have also an example of people speaking a language in which there is a recognized term for blue, and yet this term is used by them indiscriminately for both dark blue and black. I have not had the opportunity of discovering whether defects of language similar to those which I have described would be found among educated Egyptians. It is probable that such defects may survive among the peasants of a country long after they have disappeared from the speech of the more cultivated classes, and Kirchhoff gives a very good illustration of this from Germany,<sup>2</sup> where in some parts there is still evidence of the confusion between violet and brown which is very common in more primitive races. It is among the peasants of a civilized country that one should look for the features of colour language which I have described.

In the ancient language of Egypt it is said that there were definite words for both green and blue, and the decorative art of ancient Egypt can leave no doubt in the mind of anyone that there was a comparatively high degree of development of the colour sense corresponding to this high degree of development of colour nomenclature. The Egyptian peasant may have lost this highly developed colour vocabulary, and possibly to some extent also may have degenerated in his colour sense. It is, on the other hand, possible, and there seem to be other reasons in favour of the possibility, that the various civilizations

<sup>1</sup> *Popular Science Monthly*, vol. lix, p. 44, 1901.

<sup>2</sup> *Das Ausland*, S. 546, 1883.

of Egypt may have passed over the heads of the *fellâhin* without affecting their mental development in any marked degree, and that they continue to have the same primitive ideas of colour which their ancestors had several thousand years ago, just as they continue to use the *shâdûf* to irrigate their fields. It is possible that when the native of Egypt began to use the Arabic language he carried over into this the same features which characterized his previous tongue, whatever that may have been.

#### DISCUSSION.<sup>1</sup>

Professor SULLY, after paying a tribute to the interesting and valuable line of work undertaken by Dr. Rivers, suggested that in testing the colour sense of savages the element of uncertainty introduced by nomenclature might be eliminated by the use of a supplementary method. Young children might be selected, and a definite tint, *e.g.*, a blue, set before them as a standard tint, and carefully observed and named. Then the tinted glasses might be employed, and the point determined at which the child was able to recognize the colour as the same as the standard tint. This last should be kept before the child and be referred to if necessary. He would have been glad to hear from Dr. Rivers whether the savages examined by him employed different names for bright and dark shades of the same colour. From his observations of children, and from the reasonable hypothesis that colour discrimination developed in the race out of discrimination of light intensities, he should expect to find that this was a characteristic of the nomenclatures of savage races.

Mr. McDougall: Dr. Rivers' very interesting observations seem to fall into line with and indeed to form by far the most important part of a considerable mass of evidence drawn from very various sources. From this mass of evidence some authors have drawn the conclusion that our capacity of experiencing the sensation of blue is a comparatively modern accomplishment, that it has been much more recently acquired than the sensations given by the light of the other end of the spectrum. Dr. Rivers seems inclined to accept this conclusion as in some degree true. I happen to be interested in maintaining a different view of the course of evolution of our colour sense, and I wish therefore to point out that all the evidence from which this conclusion has been drawn is possibly capable of bearing a different interpretation. If we compare our colour sensations introspectively, I think most of us will admit that there attaches to the warm colours a more emotional interest, a greater affective value, than to the cold tones. Both Mr. Havelock Ellis and the late Mr. Grant Allen have brought together from various sources, largely from the examination of works of art, conclusive evidence of this greater emotional or æsthetic value of the warm colours. I would suggest that in this fact we may perhaps have the key to the true explanation of the apparent indifference of primitive folk to blue tones and their lack of names for them, and possibly even to the results of Dr. Rivers' exact observations. Savage and primitive men will naturally give their attention to the more emotional

<sup>1</sup> Some of the points raised in the discussion refer to remarks on the general problem of the colour sense with which Dr. Rivers concluded his paper.

colours, neglecting others; and so will educate their sense of red, while neglecting their sense of blue. We know that their pigments are mostly reds and yellows, and so were Sir Joshua Reynolds'. I do not think, however, that the less affective value of blue is a valid ground for regarding the sense for blue as a more recent growth. The converse might, perhaps, be argued with greater force from analogy with other senses. Thus it seems fairly certain that the hearing of noises is a more primitive faculty than the appreciation of tones, that simple touch is older than the sense of temperature, and so on. My own work on colour vision has led me to suggest the view that primitive vision corresponded to our sense of grey, that our senses for blue and yellow became differentiated as the affections produced by the light of the two ends of the spectrum, and that at a later period the senses of red and green became differentiated in a similar way from the sense of yellow. The facts of colour blindness and the distribution of colour sense in the periphery of the retina (as generally accepted) fit well with this scheme of development. The evidence from children is very mixed, but Professor Baldwin, whose results are at least as trustworthy as any others, and refer to a child of only nine months old (an age earlier than others have attempted to deal with), finds that red, blue, and white seemed to be almost equally attractive, while green was very much less so. The chief objection to this scheme seems to be evidence of the kind that Dr. Rivers has brought forward this evening, and it was for this reason that I wished to point out a possible mode of escape from the conclusion that he seems inclined to accept.

Dr. C. S. MYERS offered a further example of the independence of defective nomenclature and sensation gathered from his experiments upon the sense of taste among the Murray Islanders. These people possessed names for sweet, acid, and salt tastes, but evidently knew no word to describe the bitterness of quinine, while their extreme dislike of it was no less obvious.

Dr. EDRIDGE-GREEN said that, in his opinion, the only reliable method for scientific purposes of ascertaining the colour perception of an individual was the spectroscope, and he would like to know whether Dr. Rivers had employed this method. He had pointed out the defects of the Holmgren test in a paper read before the Royal Society more than ten years ago, and that Society appointed a committee who recommended this test, though at the present time the defects of the test were well known and acknowledged even by those who had previously supported it most strongly. In addition to the fact that a large number of normal sighted persons had been rejected by the test (over 38 per cent. one year and 42 per cent. another of those who appealed from the decision of the Board of Trade examiners were found to be normal sighted), six distinct varieties of colour blindness might escape detection. Three of these six varieties were dangerously colour blind. Extraordinary as it might seem the test was still the official one of the Board of Trade, but few would credit, unless they had tried, how difficult it was to convince men of a perfectly obvious and easily ascertained fact, when that fact was opposed to their preconceived notions.

Mr. W. H. WINCH: Dr. Rivers' investigations from the linguistic side and his more objective tests seem to give harmonious results. But it has often been objected that investigations from the linguistic side do not necessarily throw light upon colour sensibility, since it is asserted—

1. The sensibility may be there, though the name may not be known to the language,
2. Names may be wrongly applied, even though there is a sensible distinction between the colours named.

Admitting to a limited extent the force of these objections, it seems advisable to endeavour to remove, or at least minimise, the language difficulty by taking a large number of cases in which there is no doubt that the names of the various colours have every chance of being equally known from every point of view, except that of developing sensibility. If in these cases there seems a growth and order of development in colour appreciation, it would appear hardly possible to explain it by defect of language. I have examined a large number of children in infant schools, and hope, as opportunity arises, to test many more, using the coloured balls and beads which are used in the infant schools of the London School Board. The colour names for these are taught equally, but experiment shows that the following, taking a general result from a large number of cases, is the order of development:—white, black (equal), red, blue, green, yellow.

## THE RACES OF EARLY EGYPT.

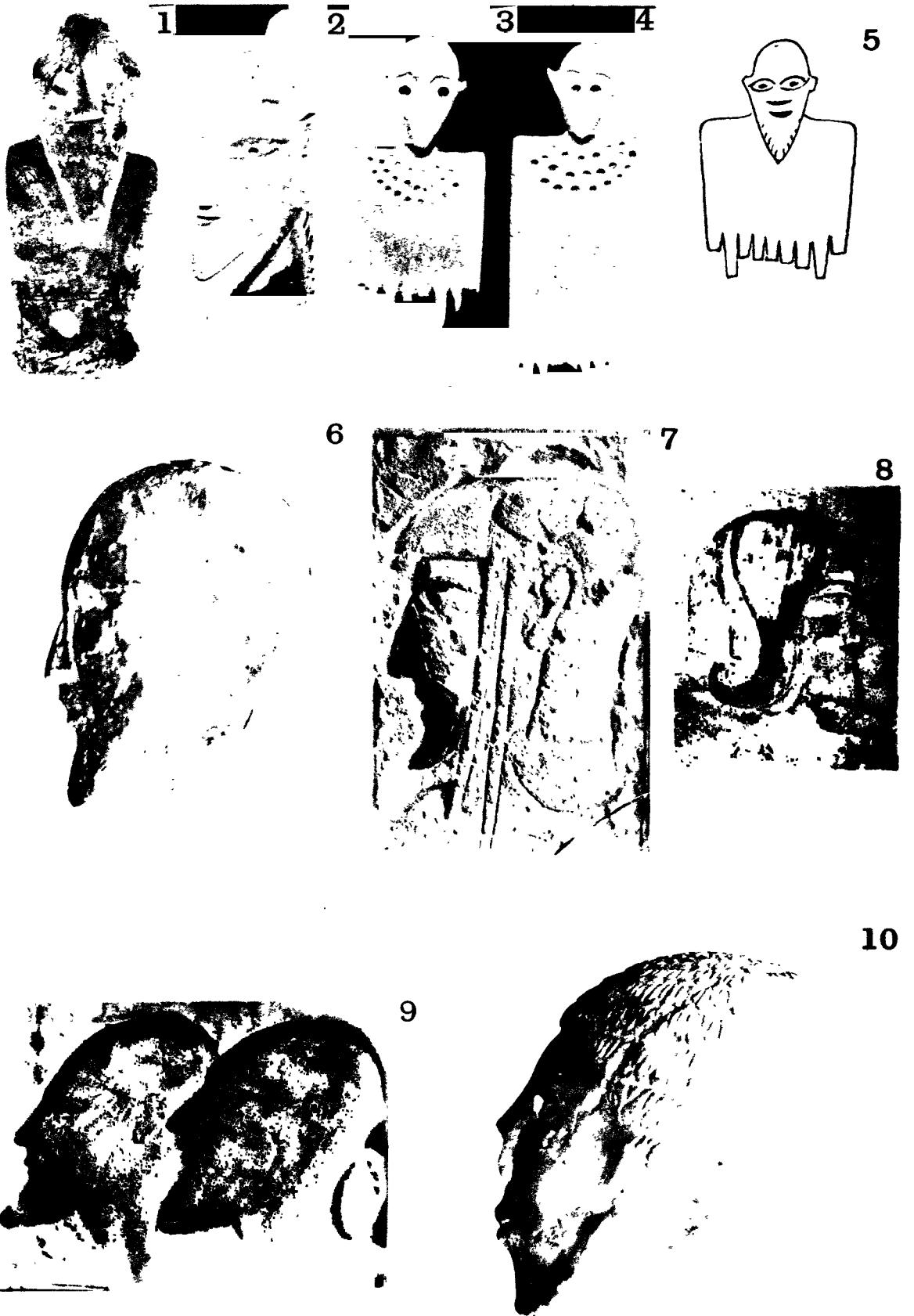
By W. M. FLINDERS PETRIE, D.C.L., Edwards Professor of Egyptology at  
University College, London.

[WITH PLATES XVIII-XX.]

As very various opinions have been expressed lately about the type of the early Egyptians, it is desirable to place together the best data that we yet have for observation. In two respects this subject may yet be amplified: (1) it is hoped that more material of the early dynasties may be forthcoming from the clearance of the early temple site of Abydos, which it is intended shall be done in the next three years; and (2) the comparisons with the types figured on the Egyptian monuments of later ages, with localities stated, may help in connecting the early races with those known otherwise. To undertake stage (2) while stage (1) is yet unaccomplished would be in some cases premature; but to postpone all observation of the variety of race till stage (1) is fulfilled would hinder knowledge. We have enough now to make a first classification, and that is what is brought forward here.

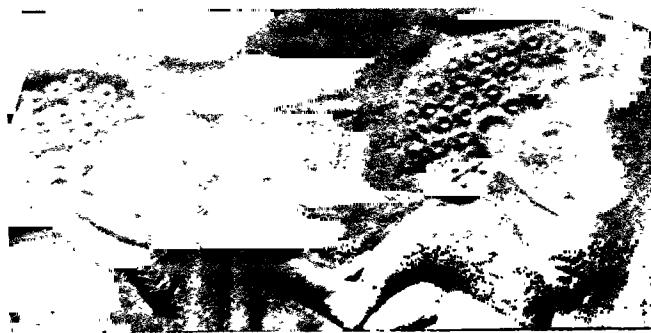
We must disabuse our minds of the prevalent feeling that stepping back a few thousand years will lead us to a simpler condition of races, and that at the present beginning of our information we deal with "purer" races than those around us in the present day. On the contrary, before man was tied down to the permanent possessions of domestication and agriculture he probably roamed and mingled more widely than in historic times. We must expect to deal with mixture of origin as much in 5000 B.C. as in 1900 A.D.

It is unfortunate that the appreciation of portraiture is so blunted at present. The ancient artists showed a keener discrimination than is to be found in most people of intelligence now. Nothing is commoner when differences of features are pointed out to educated people than to see a blank look of distaste, followed by the honest remark that "they all look very much alike, and I can't see where you find the difference." That these differences are not mere accidents of work is shown by the same hand on the same stone, carefully figuring marked differences in one part, and an exact identity of type in another part. It really needs a training of the eye and judgment to make any use of the figures, or to give any opinion worth hearing about them. No one can be an authority on



THE RACES OF EARLY EGYPT. i. THE AQUILINE TYPE (1-10.)





11

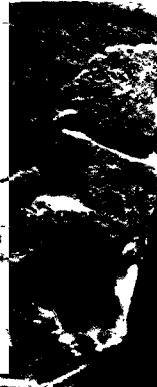


12

ii. THE PLAITED BEARD TYPE (11-12).



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iii. THE POINTED NOSE TYPE (13-15).



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iv. THE TILTED NOSE TYPE (16-19).



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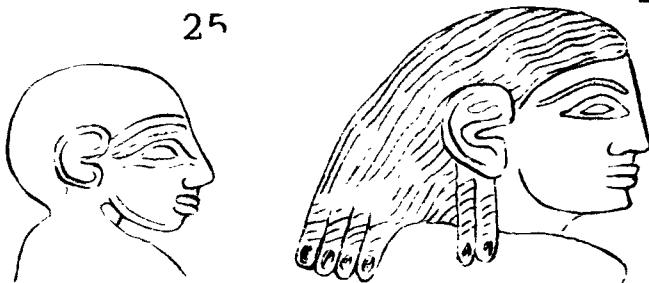
21



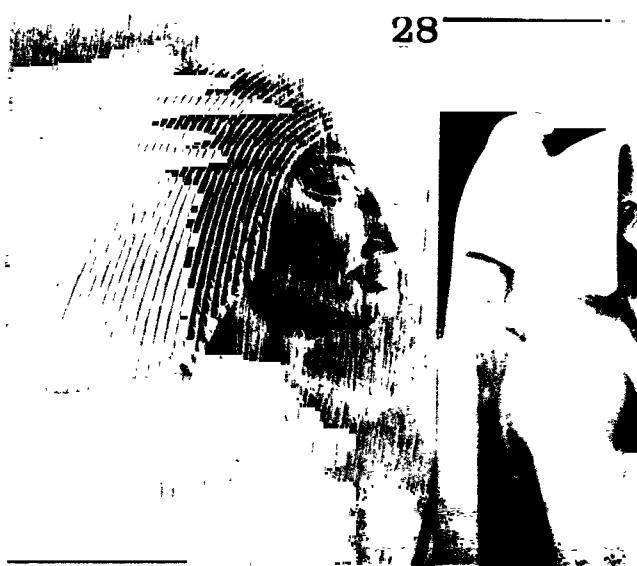
22

v. THE FORWARD BEARD TYPE (20-22).





VI. THE STRAIGHT-BRIDGED TYPE OF THE DYNASTIC RACE (23-27).



28

29

30



vii. THE MIXED RACE OF THE FOURTH DYNASTY (28-30).



modern pictures and historical portraits without insight and experience; and ancient art and portraiture need at least as much preparation, as they are further from our common knowledge.

SOURCES.—The material for our observations on the early races has all come to light in the last few years. Of the prehistoric age there are several rude figures (see *Naqada*, lix; lx, 21; lxiv, 81; and here Figs. 1 to 5) which all agree in a general type. There are also figures of a very different and steatopygous form (*Naqada*, vi); this probably became mixed with the other type. Of the earliest dynastic times there are the invaluable slate carvings, of which retouched photographs were published in *Journ. Anthropol. Inst.*, xxx, Pls. B, C, D. There are also the ivory carvings, stone figures, and sculptured mace heads from Hierakonpolis (see *Hierakonpolis*, Pls. I, III, V–XII, XV, XXI, XXVI, A, B, C, XXIX, XXXIX). Of the first dynasty there are the ivory carvings from Abydos (*Royal Tombs*, vol. i, Pls. XII, XIV; vol. ii, Pls. III, A, IV). With later times we do not attempt to deal at present; though it would be highly desirable to have a complete *corpus* of photographs of every head of importance throughout Egyptian history. The references to the figures here given is as follows:—1 to 4, in University College, London; 5, *Naqada*, lix, 5; 6, *Hierakonpolis*, vi, 4; 7 to 9, *Racial Portraits*; 10, *Hierakonpolis*, vi, 1; 11, *Journ. Anthropol. Inst.*, xxx, D; 12, *Journ. Anthropol. Inst.*, xxx, C; 13, *Royal Tombs*, vol. ii, Pl. IV, 5; 14, *Hierakonpolis*, xxvi A; 15, *Royal Tombs*, vol. ii, III A, 2; 16, *Hierakonpolis*, xxix; 17, *Journ. Anthropol. Inst.*, xxx, B; 18, *Hierakonpolis*, xxix; 19, *Hierakonpolis*, xxvi, C; 20 to 22, *Hierakonpolis*, xxix; 23, *Hierakonpolis*, xxvi, C; 24 to 27, *Hierakonpolis*, xxix; 28, *Petrie, History*, i, Fig. 20; 29, *Petrie, History*, i, Fig. 33; 30, *Racial Portraits*. These are only stated to show the position of the originals; in many cases the actual heads shown here are taken from casts.

DATES.—It is essential to observe the relative ages of the various heads, as the condition of the peoples represented was changing from hostility to captivity, and lastly to union with the spreading government of Egypt. The system of sequence dates (described *Journ. Anthropol. Inst.*, xxix, 295, and *Diospolis*, 4–12) is best suited for this, as there will be but one number to observe. But this system must be extended into the early history; and happily the junction of the sequence numbers 30–80 with the history is now fixed; the cylinder jars of King Ka are of the form dated s.d. 78, and those of King Mena are of s.d. 80. Nar-mer therefore between Ka and Mena must be dated s.d. 79. The order of the carved slates (see *Journ. Anthropol. Inst.*, xxx, B, C, D) has not yet been studied; but from the art, and its connection with that of the first dynasty, I believe the order should be (referring to Pls. B, C, D, above):—

IV. Louvre fragment, wiry, over-detailed style ...	...	75
V. Gizeh fragment, similar ... ... ...	...	76
II. Louvre and British Museum, more free and active...		77
VI. British Museum and Oxford, fine style arising ...		78
I. Gizeh, elaboration of anatomy ... ... ...		79

Purely provisionally, in order to distinguish the sequence quickly, I shall give these the sequence dates last named, 75 to 79, though very likely they may really all belong to 78–79.

The sequence dates of the prehistoric heads are probably about as follows:—No. 2, s.d. 40, and Nos. 3, 4, s.d. 43, judging from similar examples already dated; and No. 5 is about 52. No. 6 was from the great find of ivory at Hierakonpolis, s.d. 79. Nos. 7, 8, 9 are from sculptures of the nineteenth dynasty; No. 10 is probably of s.d. 79.

**THE RACES.**—In dividing the various types as follows it must not be supposed that they are all separate peoples; some may well be mixtures of others, but the first step is to classify the forms.

1. *The aquiline type.*—Setting aside the steatopygous race, which is only found modelled in the earliest known graves, and which appears to have been early extinct as a separate people in Egypt, there is but one type seen in all the prehistoric figures. Some examples of it are given, Figs. 1, 2, 3, 4, 5; and others in slate, paste, ivory, etc., are only poorer variants. All come from Upper Egypt. The characteristics of this type are the high domed head and pointed beard, the profile being too slight to give much indication. Though this inartistic people did not leave any fine images, yet luckily their artistic conquerors made some excellent ivory carvings, one of which (Fig. 6) is clearly of a man of the usual prehistoric type. There is the same high domed head and pointed beard, with a long nose, which is clearly indicated in the prehistoric head, Fig. 2. The growth of the beard and the high head both mark off these examples from all the other types in Figs. 11 to 30.

Now it so happens that this type is very well known already on later Egyptian monuments. The precise resemblance of Figure 6 to Figures 7 and 8 is beyond question; and the latter represent (7) the Tahennu and (8) the western race in general. For popular convenience we may call them Libyans, a term which covers many allied races. The closely similar physiognomy of the Amorites, Figure 9, points to a common origin; and as these Amorites were a fair people (by the remains of colour on the monuments) they join well with the fair Libyan race. So far, from physiognomy we reach the simple conclusion that North Africa, Egypt, and Syria were occupied by allied tribes of a European character. The head, Figure 10, is apparently of the same race crossed with negro, which has made the hair curly, the lips weak, the beard short, and the outline less orthognathous.

Beside this strong resemblance of type, and the presumption that a race that was on each side of Egypt probably occupied that land at one time, there are still remaining, especially in the pottery and decoration, very strong cultural resemblances between the prehistoric Egyptian and the present Kabyle of Algiers. These have been already detailed by me in *Naqada*, p. 63, and are so generally accepted that we need not re-state the case here.

But lately it has been asserted emphatically that the prehistoric Egyptians were not Libyans, on the ground of asserted differences in the cephalic, the

alveolar, and the nasal index. As this is based on the comparison of two peoples who are over 1,500 miles apart, and with over 7,000 years interval between them, one in mountains, the other in a plain; one by living heads, the other by dead skulls, it is clear that many unstudied data are involved. The fixity of cranial characters is yet quite unknown, and all we can do is to compare a few cases. The alveolar index it is however agreed is similar, both prehistoric Egyptians and modern Kabyles<sup>1</sup> being orthognathous. The nasal index is quite ambiguous, the values being:—

			Nasal In.	Years ago.
Prehistoric Egyptian	...	...	540	7,000
Algerian skulls	...	...	490	2,000?
Living Kabyles	...	...	680	0

Thus the Egyptian is between the ancient and modern Algerian. The sole question left therefore is that of the cephalic index. This ranges thus:—

		Ceph. In.	Years ago.
Prehistoric Egyptian	...	720	7,000
Algerian (Dolmens and Biskra)	...	740	2,000
Living Kabyles	...	770	0

Here is at once a suggestion of change in Algeria alone. The index has shifted 15 per 1,000 years (from 720 to 770); and the difference of 4 per 1,000 years (from 720 to 740) between Egypt and Algiers is only a quarter of the rate of change shown in Algiers itself.

Is this change comparable with that in other lands, apart from any serious change of race? In Middle Italy we have a fair case, in one region, not much disturbed by invasions so far south. From Flower's Catalogue we find:—

		Ceph. In.	Years ago.
Aquinum	...	790	2,000
Middle Italy, general	...	794	2,000
Middle Italy, modern	...	802	0

Here there is a change of 5 per 1,000 years, as determined entirely by skulls or a greater rate of change than that between Egyptian and Algerian skulls.

But when we compare skulls and living persons we find much larger differences, which suggest that measurements on the living are not comparable with those on skulls. For instance—

<sup>1</sup> The word Berber should be avoided, as it is used for totally different races, the Kabyle and the Nubian, fair and black.

	Skulls.	Difference.	Living.	
Anglo-Saxon, 1,200 years old.	750	40	790	South England.
Whitechapel, 200 years old.	747	47	794	South-east England.
Modern English, all	... 770	21	791	All England.
Ancient Algerian	... 740	30	770	Living Kabyles.

Here we see that the difference of ancient and living Algeria is of the same character as that between skulls and living heads in other instances at home, even where there is no lapse of time. Hence the only difference we need consider as regards the Egyptians is that between the prehistoric Egyptian and ancient Algerian; a change of only 20, or 4 per 1,000 years, which is far within the scope of likely variation in any one race. Moreover no one has ever asserted that the two races were united by direct descent, but only that they were akin. The differences produced by amalgamation with other peoples, by the lapse of 7,000 years, by the life in a hot plain and on cold mountains, by the distance as much as from England to the Crimea;—all these will well account for a difference of 20 when the human range of racial averages is as much as 170.

On one other point of the Libyan connection a mistaken statement has been made, owing to trusting entirely to a modern transliteration of Egyptian. The royal bee in Egyptian had the phonetic value written with the leg *b*, the reed which the Greeks transliterated *u*, as in *Amen* and *Anubis*, and the drill-cap *t*, reading *bat*, or *byti* as some prefer it. The resemblance of this royal title *bat* in ancient Egypt, to the Libyan *buttos*, a king, as stated by Greeks, is as close as could be expected. To deny that the Greek value of the reed sign might be *a*, is impossible when we see the examples that I name above.

I fail to see that craniometry has any serious evidence to bring against the connection of the prehistoric people of Upper Egypt with those of ancient (or even modern) Algiers. It is only when ignoring all the many causes of variation that the amount of difference seems of importance. But the physiognomy gives a decisive proof of connection between prehistoric Egypt and ancient Libya, and thus anthropology fully supports the many evidences which archæology has given for a close connection between Egypt and Libya.

We now turn to the other types found on the early monuments.

2. *The plaited-beard type.*—See Figures 11, 12. This is extremely different from the prehistoric aquiline type. The characteristics are close curly hair, a plaited hanging beard, thick straight nose rounded at the end, rather thick lips, and receding chin. The examples are only on the carved slates, dating about 75 and 78 s.p.; both are conquered peoples. On one slate they are seen to be circumcised, on the other a sheath is worn with a belt, but no other clothing

appears. Occurring so early, they seem to be not far from Upper Egypt; but no such people recur on later monuments. They may then have been an invading race from a distance, which was exterminated in Egypt; or possibly they may belong to the Red Sea coast. The nearest instance of this type is that of the deity and worshipper on the relief at Ibriz.

3. *The pointed-nose type.*—See Figs. 13, 14, 15. This is a well-marked type, with a large slender nose sharply pointed, a somewhat projecting beard, and the hair tied up in a thick pigtail from the crown of the head in Figs. 13, 14, showing that the hair was long and lank. In two cases the figures wear a loin cloth, and in the other case a long spotted robe from the neck to the calf of the leg. A figure with the same peculiar robe appears as conqueror on Slate VI (*J.A.I.* xxx, Pl. D) date 78; the robe then being trimmed with an edging all round. A similarly robed figure, nearly life size, in limestone, was found at Hierakonpolis (not yet published). The huts of these people are shown on an ivory slip (*Royal Tombs*, ii, iv, 11; see p. 22) as being circular, made of reeds or stems bound together, with a dome top of interlacing palm branches (?). In no case do they appear as captives, so they must have been early united to the conquering tribe; but yet they were tributaries, Fig. 13 bearing a branch and bowing, Fig. 14 bearing a stone vase and a palm spathe (?), Fig. 15 bearing also a vase. From the substantial long robe we must suppose that they came from a colder and elevated land; the highlands of the eastern desert (Gebel Dokhan, Gebel Ataka, etc.) are the nearest such region, and the tribute of stone vases, and early union with the conquerors who came from the Red Sea, agree with this placing.

4. *The tilted-nose type.*—See Figs. 16, 17, 18, 19. The characteristics are a short thick nose, projecting and sloped upward below: the chin short and rather receding; the brow well marked. The hair is wavy (Figs. 16, 19), like the prehistoric and later Egyptians, or curly as in Figs. 17, 18. Figs. 16 and 19 wear a belt and tie in front; 17 a kilt with an animal's tail hanging behind; 18 a waist-cloth and sheath; the slain figures on the slate are shown as circumcised. The weapons used by this type are spear, bow and arrows, double axe, throw-stick, and mace; they also used the lasso (*J.A.I.* xxx, Pl. B). They carry the hawk standard and the eastern standard. The title or name of Fig. 16 appears above him as *ua she*, which may probably mean "chief of the lake," i.e., Fayum district. These people appear as conquerors at S.D. 77 and 79; but yet conquered in 79. As, however, there are some differences (especially in beard and hair) between each of the examples given, it is likely that they were a wide-spread people which were conquered in sections. I should be inclined to see in these the general type of middle Egypt at the time of the dynastic invasion.

5. *The forward-beard type.*—See Figs. 20, 21, 22. These seem different from the preceding by the horizontal base to the nose, and the very forward growth of the beard, like that on early Greek vases (*Defenelle* xxx, 1). These heads are those of the standard bearers of King Narmer (20, 21), and that of the people over which they triumph (22). There is a difference also in 20 and 22 having

moderate hair, and 21 having long hair. The dress of 20 is a loin cloth, that of 21 a belt and hanging tie; 22, being a slain figure, is stripped, but the other heads along with it wear the skin and horns of an ox. As all of these heads are very small I have drawn them larger for clearness. This type must belong to a district partly conquered and incorporated before Narmer, and partly conquered by him. The standards borne in procession are the piece of flesh (Letopolis, north of the pyramids) carried by No. 25; the jackal (Cynopolis, 100 miles above Cairo) carried by 20; and two hawk standards borne by two men of type 21. As these have conquered similar men, it suggests that they extended further on down the west of the Delta. If the standard be that of Cynopolis it might be due to a conquering settlement of these people among the type 4 which seems likely to belong to the Fayum and Middle Egypt.

6. *The straight-bridged type.*—See Figs. 23, 24, 26, 27. This is unquestionably the conquering dynastic race. Fig. 23 is a king, apparently designated by a scorpion, who came probably just before Narmer. Fig. 24 is Narmer himself: 26 is his high priest: 27 is his servant. All of these have the straight bridge to the nose, with a very slight frontal swell in Narmer, but otherwise the forehead and nose in one line. The face is orthognathous, the jaw large, lips well formed; beard slight, and the hair long and wavy ending in ringlets, but generally shaven. This type of royal race lasted to the end of the second dynasty, as the straight bridge appears on the statue of King Khasekhem, of which the nose and chin are unfortunately lost. The dress was the loin cloth, with a tail of an animal hanging behind, for the king; a girdle with long ends for the servant; and a plain loin cloth (of the form usual in historic Egypt) for the common people, *e.g.*, the servants on Fig. 23, who are of the same type. As the conquering race appear to have started at Abydos it seems most likely that they came into Egypt from the Red Sea, along the Kosier road.

7. Lastly, at the end are some examples of the mixed race of the fourth dynasty. The head of Hesy, Fig. 28, shows much of the prehistoric type, the high domed head and long aquiline nose. The head of Khafra, Fig. 29, is of much the same type, and shows little or no trace of the early dynastic type. The head, Fig. 30, of a noble of the fourth dynasty, Sem-nefer, shows how a little of the old dynastic type remained in the mouth and chin (see Fig. 27), but the nose seems more like the Figs. 20, 21, which appear to belong to the west of the Delta. Altogether the lapse of eight or ten centuries seems to have fused the varieties, and enabled the old prehistoric type of Upper Egypt to reassert itself.

These notes will serve to show how many different strains and mixtures have to be dealt with, and how needful it is to know more of the locality and age of each type from further examples.

The table opposite shows the principal results.

Type.	Region.	Head.	Nose.	Chin.	Beard.	Hair.	Dress.	Subject.	Ruling.
Aquiline ...	Upper Egypt	High dome	Aquiline	Good	Pointed	Wavy...	—	S.D. —	S.D. 30—75
Plaited-beard ...	Red Sea ?	Short dome	Thick and straight.	Varying	Plaited, hanging.	Close, curly ...	Sheath ...	75	—
Pointed-nose ...	East? high-lands.	Medium	Slender, pointed.	Good	Long	Lank, pig-tail	Loin cloth, long robe.	—	78
Tilted-nose	Middle Egypt?	Low	Short, thick, sloping up.	Short, receding.	Narrow, short.	Wavy...	Belt and tie, sheath, kilt.	79	77 79
Forward-beard ...	Lower Egypt?	Low	Strong, sloping down.	Strong	Forward	Lank ...	Belt and tie, loin cloth.	79	79
Straight-bridge ...	Upper Egypt and descending.	Short dome	Straight with forehead.	Strong	Narrow, short.	Long, wavy, shaven.	Belt and tie, loin cloth.	—	75

## NOTES ON CRANIA FROM THE NILE-WELLE WATERSHED.

By F. C. SHRUBSALL, M.A., M.B.

SKULLS from the Zereiba country, the Upper Nile, and the dense forest between that river and the tributaries of the Congo, are very rare in English museums. Six only are in that of the Royal College of Surgeons; the cranium of a negro of the Bari tribe obtained near Ragaff; two skulls of members of the Monbottu (Mangbattu) nation, and three of Azandeh people of the Niam-Niam country.

The chief accounts we possess of the natives of this district are found in Schweinfurth's *Heart of Africa* and in Junker's *Travels*. Schweinfurth describes the Monbottu as being of a lighter tint than any other people of Central Africa. Compared with the Azandeh they have less fulness of muscle, without however any appearance of debility, a better developed beard, and much the same growth of hair. He also says: "The physiognomical form of the skull of the Monbottu in many ways recalls the type of the Semitic tribes, and they differ from the ordinary run of negroes in the greater length and curve of the nose. All these characteristics betoken an affinity with the Fulbe, and as such the Monbottu may probably be included among the 'Pyrrhi *Aethiopes*' of Ptolemy."

Materials for a detailed comparison of the crania of these groups are at present lacking, but the specimens in the College of Surgeons Museum show very close resemblances between the Monbottu and the more southern Bantu peoples. During the ten years which elapsed between the visits of Schweinfurth and Junker the Monbottu nation seen by the former had been practically erased by the incursions of Arab slave dealers from the Egyptian Sudan.

The Azandeh nation form a part of the negro family on the Nile-Congo watershed. Leo Reinisch connects their language rather with the Bantu than the Sudanese group. The term Niam-Niam, which means cannibal, seems to be somewhat indiscriminately applied to these tribes by their northern neighbours. Subjoined are detailed notes on these skulls, and brief comparisons with those of allied races. The cranial capacity of these skulls ascertained by Broca's method shows them to be of medium size, the Azandeh crania being more capacious than those of the Monbottu, and the one female cranium much smaller than either of the four males. The Bari skull was too damaged to allow of measurements being taken.

Tribe.	Catalogue number.	Sex.	Capacity in c.c.
Monbottu—			
Mangheri ...	1257B	♂	1320
Akossi ...	1257C	♂	1390
Azandeh ...	1257D	♂	1485
	1257E	♂	1445
	1257F	♀	1225

With these we may compare the following average capacities of male skulls:—

Masai (Virchow)	...	...	...	1350
Kaffirs	...	...	...	1540
Abantu of the Central Lake district	...			1430
Ashanti	...	..	...	1340
Dahoman (Virchow)	...	...	...	1400
Arabs	...	...	...	1480

The crania of the Nilotic negroes described in this note are of good dimensions, the greatest transverse diameter being bi-parietal. Viewed in *norma verticalis* they must be included in the ellipsoidal group of Sergi. Relatively the Monbottu skulls are broader than those of the Azandeh, the former being mesaticephalic, and the latter very dolichocephalic. The small number under consideration renders any attempt at an average impossible, but it might be noted that while the former have a higher, the latter have a lower cephalic index than the average of any Abantu skulls I have measured.<sup>1</sup>

Virchow tabulates the distribution of the cephalic indices of skulls from this part of Africa which he has examined, as follows:—

	Masai.	Dwarfs.	Wanyamwesi.	Abantu.
Hyperdolichocephalic...	7	—	—	17
Dolichocephalic	6	3	4	73
Mesocephalic	3	4	4	30
Brachycephalic	—	—	—	1

To Virchow's table 1 add a corresponding column derived from all the Abantu crania I have had any opportunity of studying, so that, if the skulls in the College

<sup>1</sup> See table, *Journ. Anthropol. Inst.*, vol. xxviii, p. 91.

of Surgeons collection may be regarded as typical, the Azandeh in this respect would seem more closely allied to the Masai than to their Abantu neighbours; whereas the Monbottu exhibit the reverse characters. This suggestion receives some confirmation from the general appearance of the crania.<sup>1</sup>

The altitudinal and breadth-height indices point in the same direction, but reveal no features of special interest. The parietal eminences are not prominent, but the usual flattening of the vertex between them is to be observed.

The sagittal curve slopes gradually and uniformly back over a fairly full forehead to reach its highest point at the bregma, behind which it runs horizontally for a short distance, and then bends round, almost as the segment of a circle, to the hinder border of the foramen magnum. In the Azandeh skulls there is a slight occipital fulness not seen in the Monbottu.

The glabella and superciliary ridges are conspicuously absent in the Monbottu and Bari crania, and are only slight in the Azandeh. The temporal crest is well marked, and its double nature is very distinct. The zygomatic processes are strong, well arched, so that the crania are phænozygous, and terminate in a distinct supramastoid ridge which runs up on to the posterior inferior angle of the parietal bone. The temporal squama is flattened and relatively small, the pterion is of the normal H form, and in the female skull there is a slight degree of steno-crotaphy. As is commonly the case in African negro skulls, the conceptaculæ cerebelli are full and prominent, and the mastoid processes small though rough.

Viewed from behind, the crania are pentagonal in outline with rounded angles. All the sutures are simple and wormian bones the exception. The face is square and massive with projecting maxilla and mandible; the cheek bones are very solid and prominent. The facial indices of all the skulls, except the female Azandeh, fall in the leptoprosopic division of Kollmann, while the flatness of the upper face renders them platyopic.

The orbits are square with ill-defined rounded margins; those of the Monbottu are megaseme, of the Azandeh and Bari mesoseme; but if the German classification be adopted in all cases they would be hypsikonche. In this character they agree more with the Masai, the natives of the lake district, and the negroes of the Western Sudan, than with the southern Abantu. The nose is broad and flat with a small spine and ill-defined lower border to the apertura pyriformis. The nasal bones themselves have a distinct *retroussé* curve as seen in profile. The nasal index indicates a somewhat greater degree of platyrhiny than is usual among either the Masai or the Abantu, agreeing with the average for the Ashanti and other tribes of the western littoral.

The Azandeh and Bari somewhat unexpectedly present a lower index than the Monbottu, but in view of the paucity of material no conclusion can be drawn from this fact. The palate is parabolic or hypsiloid, leptostaphylinic in index, while the teeth are large, strong and in a good state of preservation.

<sup>1</sup> Cf. *Journ. Anthropol. Inst.*, vol. xxviii, p. 35, and Plate V, Figs. 1, 2 and 3.

The lower jaws are strong with deep sigmoid notches, high alveolar arch and somewhat square chin. As might be anticipated, the alveolar arch shows a much higher degree of prognathism in the case of the Monbottu than in that of either the Azandeh or Bari. Possibly this fact, coupled with the diminished stature, smaller cranial capacity, broader skull and more megaseme orbits, might suggest some intermixture with the dwarf races of the forest zone constituting the Welle-Nile watershed.

## MEASUREMENTS OF MANDIBLES IN MILLIMETRES.

Race.	MONBOTTU.		AZANDEH.		BAMBUTE.	
Museum Catalogue Number	R.C.S. 1257B.	R.C.S. 1257C.	R.C.S. 1257D.	R.C.S. 1257E.	R.C.S. 1257F.	B.M. 1/8/9/1
Sex....	♂	♂	♂	♂	♀	♂
Bi-condylar breadth ....	112	109	123	113	119	112
Maximum bi-gonial breadth ....	82	85	103	93	93	80
Symphysial height ....	33	39	35	34	26	32
Molar height ....	27	28	32	28	27	23
Bi-gonial arc ....	180	192	205	203	171	198
Ramus height ....	49	51	43	53	42	42
Ramus breadth ....	34	38	44	37	32	40
<i>Indices.</i>						
Collignon's Gonio-zygomatic ....	81·8	71·8	91·4	82·4	103·8	71·9
	63·3	63	76·3	72·7	72·1	64·0

## MEASUREMENTS OF CRANIA IN MILLIMETRES.

Race.	Monbottu.		Azandeh.			Bari.	Bambute.
	Mangheri tribe.	Akossi tribe.	Niam Niam.	Niam Niam.	Niam Niam.		
Museum ....	R.C.S.	R.C.S.	R.C.S.	R.C.S.	R.C.S.	R.C.S.	B.M.
Catalogue Number ....	1257B.	1257C.	1257D.	1257E.	1257F.	1257.	1/8/9/1
Sex ....	♂	♂	♂	♂	♀	♂	♂
Maximum length ....	178	176	189	185	168	—	178
Maximum breadth ....	136	137	130	124	127	—	141
Basi-bregmatic height ....	124	134	131	138	122	—	125
Bi-maxillary breadth ....	101	103	104	98	94	103	92
Bi-zygomatic breadth ....	129·5	135	135	128	129	130	125
Naso-alveolar height ....	65	75	68	67	55	67	67
Orbital breadth : Right orbit	37	38	37	38	38	39	40
Orbital breadth.—Left orbit	37	38	37	38	38	38	39
Orbital height.—Right orbit	35	34	33	33	33	34	33
Orbital height.—Left orbit ..	35	34	32	33	33	33	32
Bi-dacryc breadth ....	26	28	27	27	21	25	22
Nasal height ....	47	50	49	44	44	44	46
Nasal breadth ....	24	28	29	23	26	26	27
Internal bi-orbital breadth ....	98	101	99	100	95	99	95
Basi-nasal length ....	95	99	104·5	101	90	—	94

Race.	Monbottu.		Azandeh.			Bari.	Bambute.
	Mangheri tribe.	Akossi tribe.	Niam Niam.	Niam Niam.	Niam Niam.		
Basi-alveolar length ....	103	105	104	104	91	—	101
Internal palatal length ....	51	56	55	56	49	47	54
Internal palatal breadth ....	38	41	37	36	38	39	31
Dental length ....	45	43	42	44	40	42	42
Naso-malar curve ....	103	108	108	106	100	106	106
Frontal curve ....	128	115	132	126	129	134	125
Parietal curve ....	112	130	114	136	119	135	115
Occipital curve ....	107	113	129	—	108	—	110
Total sagittal curve ....	347	358	375	—	356	—	350
Total horizontal curve ....	495	500	520	512	477	—	505
Total coronal bi-auricular curve.	292	305	305	300	290	321	286
<i>Indices.</i>							
Length-breadth ....	76·4	77·8	68·8	67	75·6	—	79·2
Length-height ....	69·7	76·1	69·3	74·6	72·6	—	70·2
Breadth-height ....	91·2	97·8	100·8	111·3	96·1	—	88·7
Maxillary—facial ....	64·4	72·8	65·4	68·4	58·5	65	72·8
Upper facial (Kolmann)	50·2	55·5	50·4	52·3	42·6	51·5	53·6
Orbital.—Right orbit ....	94·6	89·5	89·2	86·8	86·8	87·2	82·5
Orbital.—Left orbit ....	94·6	89·5	86·5	89·2	86·8	86·8	82·0
Nasal ....	51·1	56	59·2	52·3	59·1	59·1	58·7
Alveolar ....	108·4	106·1	99·5	103	101·1	—	107·4
Palatal (Virchow) Staphylinic	74·5	73·2	67·3	64·3	77·6	83	57·4
Dental ....	47·4	43·4	40·2	41·6	44·4	—	44·7
Naso-malar ....	105·1	106·9	109·1	106	105·3	107·1	111·6
Relation of Curves :—							
Frontal-total sagittal ....	36·9	32·1	35·2	—	36·2	—	38·7
Parietal-total sagittal ....	32·3	36·3	30·4	—	33·4	—	32·9
Occipital-total sagittal ....	30·8	31·6	34·4	—	30·3	—	31·4
Cranial capacity in c.c. ....	1320	1390	1485	1445	1225	—	—

Since writing the above I have been able to examine the skull of a Bambute pigmy from the Congo forest on the frontier of Uganda, sent to the British Museum by Sir H. H. Johnston. I have appended its measurements to the table for the sake of comparison. The chief features to note are the increased cephalic index, microseme orbits, long very narrow palate, broad nose and small mastoid processes, in all of which respects it agrees with the Akka skulls sent to the museum by Emin Pasha from the adjacent territory and described by the late Professor Flower. *Journ. Anthropol. Inst.* xviii, 3–19.

## MEASUREMENTS OF PAPUAN SKULLS.

By J. GRAY, B.Sc.

[PRESENTED MAY 28TH, 1901.]

I HAD recently the opportunity of measuring a number of Papuan skulls in the collection of Mr. W. D. Webster, of Streatham. There is reason to believe that these skulls came from the Purari delta and other places on the shores of the Gulf of Papua, except the last six in Table I, which came from German New Guinea. All the skulls were carved and blackened, except those from German New Guinea.

Table I gives the maximum length and breadth, and the basi-bregmatic height of each of the 124 skulls measured. The breadth and height indices calculated from the measurements are also given in Table I.

Table II gives the frequencies of the lengths, breadths, heights, and of the breadth and height indices. From this table it may be seen that there are two modal lengths, namely, 175 and 178; also two modal breadths, 125 and 130; probably also two modal heights, 132 and 136.<sup>1</sup>

All this appears to point to the presence of two racial elements among these skulls, but on the other hand one of the maxima may be due to the presence of a certain number of female skulls among the collection.

The range of variation of the lengths (41 mm.) is considerably greater than the range of the breadths and heights (33 and 32).

The frequency diagrams of the indices also show indications of two maxima. The modal breadth indices may be taken as 71 and 76 and the modal height indices as 76 and 72; the first index in each case being decidedly the most frequent. The range of the indices is very great; from 64 to 83 for the breadth index, and from 67 to 82 for the height index.

The frequency diagram of breadths (p 264) shows two principal well marked groups near the middle and smaller groups at each end. With a view of ascertaining whether these groups really represent racial elements or only variations of a single race, I have calculated the average length, height and breadth of each group. The results are given in Table III. It is evident that there is no constant correlation between the breadths and the lengths and heights in the four groups. This would also point to the conclusion that there is more than one racial type among the skulls.

<sup>1</sup> The actual maximum points are at 135 and 137, but the average 136 is probably more correct.

TABLE I.

No.	Length.	Breadth.	Height.	B. L. index.	H. L. index.	No.	Length.	Breadth.	Height.	B. L. index.	H. L. index.
1	180	121	132	67·2	73·3	63	171	125	130	73·2	76·0
2	180	126	127	70·0	70·5	64	175	131	133	75·0	76·1
3	167	118	127	70·7	76·0	65	176	142	126	80·8	71·6
4	176	125	126	71·1	71·6	66	178	125	125	70·2	70·2
5	179	127	132	71·0	73·7	67	189	134	138	70·9	73·0
6	17	130	129	74·7	74·2	68	169	133	135	78·7	79·9
7	157	130	124	82·9	79·1	69	176	128	133	72·7	75·6
8	170	121	131	71·2	77·1	70	175	135	128	77·1	73·2
9	178	124	126	69·7	70·8	71	175	131	132	75·0	75·5
10	168	119	118	70·9	70·3	72	177	127	132	71·8	74·6
11	160	121	124	75·7	77·5	73	168	128	133	76·2	79·2
12	173	123	129	71·1	74·6	74	169	131	130	77·5	76·9
13	189	144	141	76·7	74·6	75	188	129	134	78·7	71·3
14	177	133	132	75·1	74·6	76	175	120	136	68·6	77·8
15	189	126	136	66·7	72·0	77	191	131	130	68·7	63·1
16	165	136	128	82·4	77·6	78	179	134	127	74·9	71·0
17	180	132	135	73·3	75·0	79	186	124	137	66·7	73·7
18	179	130	125	72·6	70·0	80	167	121	125	72·6	74·9
19	167	131	127	78·5	76·0	81	168	129	132	76·8	78·6
20	185	132	132	71·5	71·5	82	168	132	128	78·6	76·2
21	157	121	118	77·1	75·3	83	176	126	136	71·6	77·3
22	187	125	141	66·8	75·5	84	185	130	136	70·3	73·6
23	183	133	129	71·9	70·5	85	195	131	137	67·2	70·3
24	162	131	129	80·9	79·6	86	186	132	133	71·0	71·5
25	182	130	134	71·5	73·6	87	167	122	128	73·1	76·7
26	184	132	130	71·7	70·6	88	181	128	131	70·8	72·4
27	174	129	131	74·2	75·3	89	175	123	126	70·3	72·0
28	161	131	137	81·4	85·0	90	194	130	134	67·0	69·1
29	178	121	127	68·0	71·4	91	162	133	131	82·1	80·9
30	174	125	135	71·9	77·6	92	177	137	135	77·4	76·3
31	186	139	141	74·7	75·8	93	167	134	125	80·2	74·9
32	185	120	135	64·9	73·0	94	169	129	138	71·7	81·7
33	189	131	137	69·3	72·5	95	181	123	137	68·0	75·8
34	171	123	130	72·0	76·0	96	184	129	130	70·2	70·6
35	196	129	130	65·8	66·4	97	185	129	138	69·8	74·6
36	177	128	137	72·4	77·4	98	190	139	137	73·2	72·2
37	174	129	129	74·2	74·2	99	182	143	132	78·5	72·5
38	181	120	132	66·4	73·0	100	175	134	132	76·6	75·5
39	190	125	133	65·8	70·0	101	188	132	137	70·3	72·9
40	180	124	132	69·0	73·3	102	180	125	137	69·5	76·2
41	169	135	136	79·9	80·5	103	180	125	123	69·5	68·3
42	173	125	138	72·3	79·9	104	170	126	127	74·2	74·8
43	177	121	135	68·4	76·3	105	184	143	149	77·7	81·0
44	178	120	131	67·5	73·7	106	180	122	129	67·8	71·7
45	188	136	135	72·4	71·9	107	170	129	135	76·0	79·5
46	173	130	131	75·3	75·8	108	163	129	130	79·2	79·8
47	184	119	126	64·7	68·5	109	181	123	134	68·0	74·1
48	178	125	125	70·2	70·2	110	177	125	133	70·7	75·1
49	177	122	135	69·0	76·3	111	168	130	133	77·4	79·2
50	175	130	131	74·3	75·0	112	171	122	130	71·4	76·0
51	173	123	125	71·1	72·3	113	173	122	126	70·6	72·9
52	197	129	134	65·5	68·0	114	174	123	131	70·7	75·3
53	162	133	131	82·1	80·9	115	176	140	140	79·6	79·6
54	184	126	133	68·5	72·4	116	179	122	133	68·2	74·3
55	183	134	144	73·6	78·7	117	175	112	123	64·0	70·3
56	191	130	135	68·1	70·7	118	178	133	132	74·8	74·2
57	167	117	119	70·1	71·3	119	179	128	137	71·5	76·5
58	183	131	131	71·6	71·6	120	185	135	143	73·0	77·4
59	170	125	134	73·5	78·8	121	178	134	135	75·4	76·0
60	181	137	129	75·8	71·4	122	174	130	133	74·7	76·5
61	160	125	129	78·1	80·7	123	173	120	128	69·4	74·0
62	168	130	129	77·4	76·8	124	178	130	138	73·1	77·6

TABLE II.

Lengths.	Frequency.	Breadths.	Frequency.	Heights.	Frequency.	Indices.	Frequency.	
							B. L.	H. L.
157	2	112	1	118	2	{ 63·5 64·5 65·5	1	
160	2	117	1	119	1	66·5	2	
161	1	118	1	123	2	67·5	4	
162	3	119	2	124	2	68·5	6	
163	1	120	5	125	6	69·5	13	
165	1	121	7	126	6	70·5	15	
167	6	122	6	127	6	71·5	13	
168	6	123	7	128	5	72·5	10	
169	4	124	13	129	9	73·5	5	
170	4	125	3	130	9	74·5	10	
171	3	126	5	131	10	75·5	4	
173	6	127	2	132	12	76·5	8	
174	6	128	15	133	10	77·5	3	
175	8	129	11	134	6	78·5	6	
176	5	130	13	135	11	79·5	4	
177	7	131	0	136	5	80·5	3	
178	8	132	6	137	10	81·5		
179	5	133	6	138	5	82·5		
180	7	134	6	140	1	83·5		
181	5	135	3	141	3	84·5		
182	2	136	2	143	1	85·5		
183	3	137	2	144	1			
184	5	139	2	149	1			
185	5	140	1					
186	3	142	1					
187	1	143	2					
188	3	144	1					
189	4							
190	2							
191	2							
194	1							
195	1							
196	1							
197	1							

Average length, 177 ; average breadth, 128 ; average height, 132.

TABLE III.

Groups of breadths.	Number of persons.	Lengths.	Heights.	Breadths.
General averages	...	124	177	128
Group I (112-123)	...	29	174	129
„ II (123-127)	...	23	177	131
„ III (127-132)	...	46	178	132
„ IV (132-144)	...	26	178	134

TABLE IV.

This diagram represents the correlations of the average lengths, heights and breadths of the four groups in Table III.

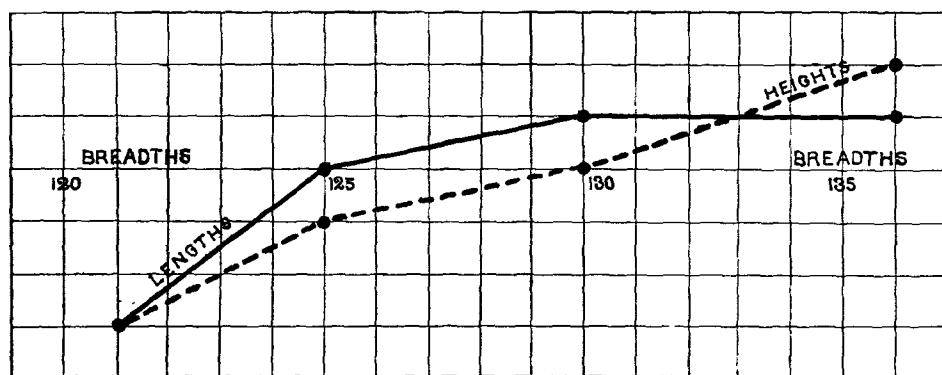
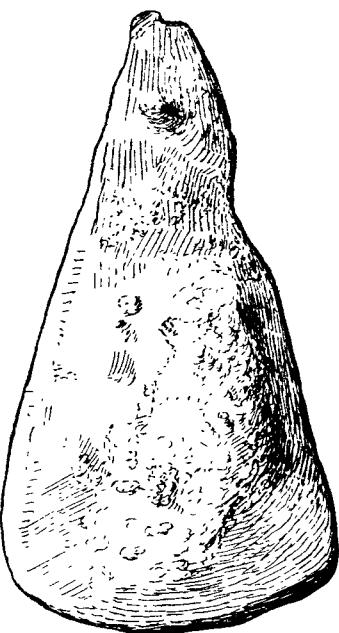


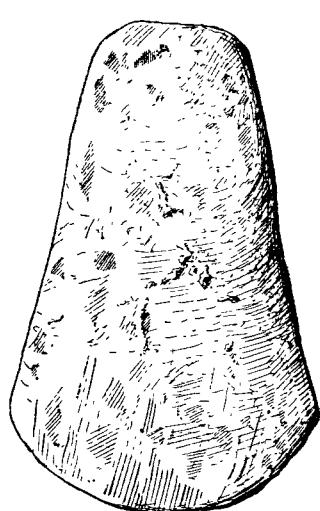
TABLE V.

No.	Height Breadth index.										
1	109·0	22	112·7	43	111·6	64	101·6	85	104·6	106	105·7
2	100·8	23	97·0	44	109·1	65	88·7	86	100·8	107	104·7
3	107·7	24	98·5	45	99·3	66	100·0	87	104·9	108	100·9
4	100·8	25	103·0	46	100·8	67	103·0	88	102·3	109	108·9
5	104·0	26	98·5	47	105·8	68	101·5	89	102·5	110	106·4
6	99·3	27	101·7	48	100·0	69	103·8	90	103·0	111	102·2
7	95·5	28	104·6	49	110·7	70	74·8	91	98·5	112	106·5
8	108·2	29	105·0	50	100·8	71	100·8	92	98·6	113	103·3
9	101·6	30	108·0	51	101·7	72	104·0	93	93·3	114	106·4
10	99·2	31	101·5	52	103·9	73	103·8	94	107·0	115	100·0
11	102·5	32	112·5	53	98·5	74	99·2	95	111·4	116	108·9
12	104·9	33	104·6	54	105·5	75	103·9	96	100·9	117	109·9
13	98·0	34	105·6	55	107·5	76	113·3	97	107·0	118	99·2
14	99·2	35	100·9	56	103·8	77	99·2	98	98·5	119	107·0
15	107·9	36	107·0	57	101·8	78	94·8	99	91·5	120	106·0
16	106·2	37	100·0	58	100·0	79	110·4	100	98·5	121	100·7
17	102·2	38	110·0	59	107·2	80	103·3	101	103·8	122	102·2
18	96·2	39	106·4	60	106·3	81	102·4	102	109·6	123	106·6
19	103·2	40	106·5	61	103·2	82	97·0	103	98·5	124	106·2
20	100·0	41	100·8	62	99·2	83	107·9	104	100·8		
21	97·5	42	110·3	63	104·0	84	104·6	105	104·2		

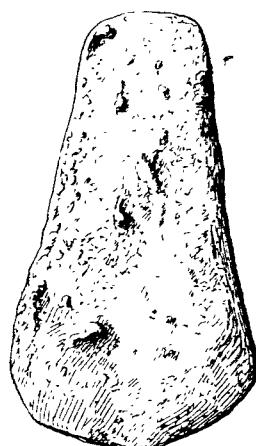




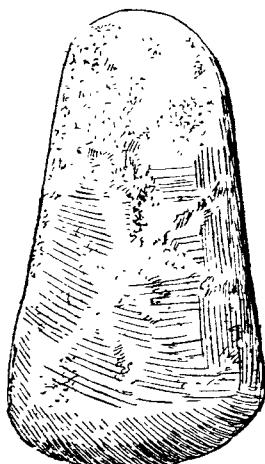
1. (w. 5.)



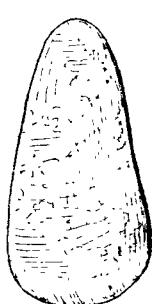
2.\* (1897, 1313.)



3. (1897, 111), CO. ANTRIM.



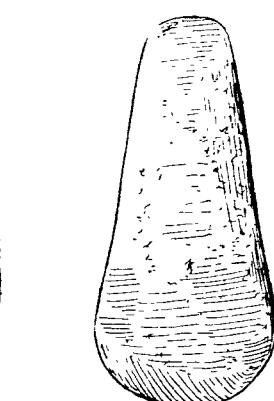
4. (w. 1.)



6. (1885, 348.)



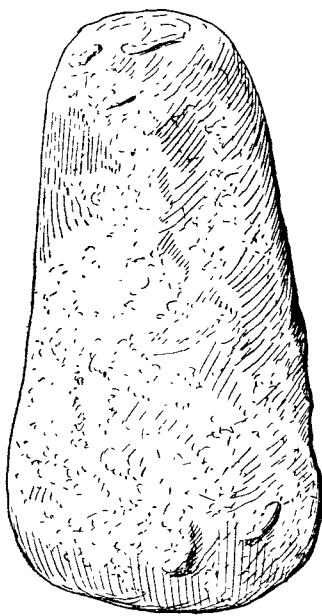
7. (w. 1, qq.)



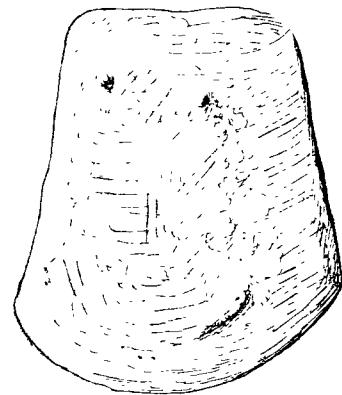
5. (w. 10, qq.)



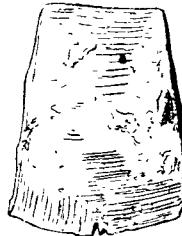




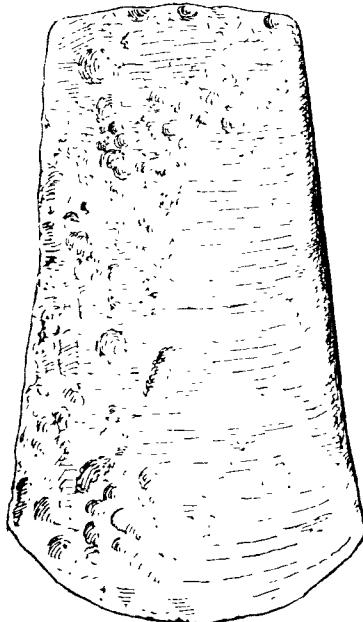
8. JERPOINT, CO. KILKENNY, *Day Collection.*



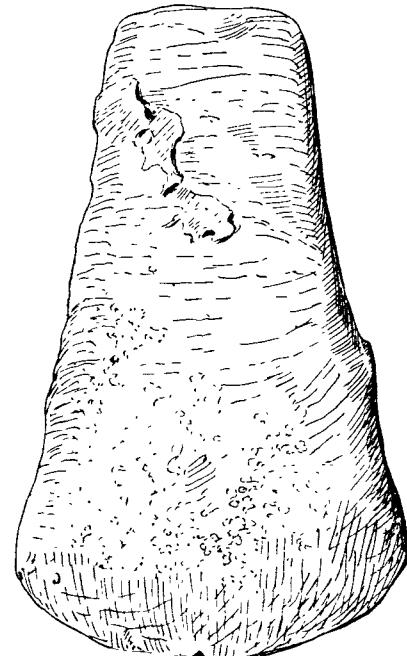
9. BALLYMENA, CO. ANTRIM, *Knowles Collection.*



10 (w. 591.)



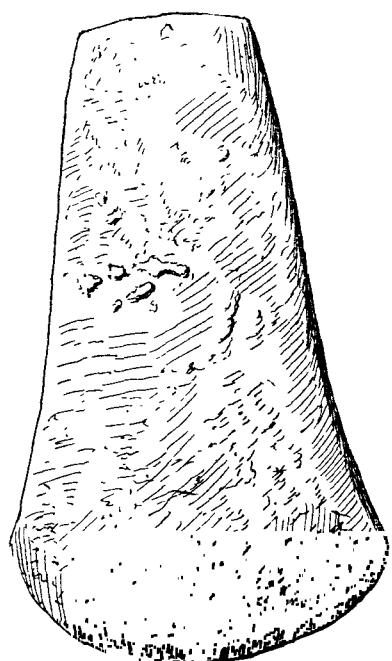
11. (w. 18.)



12. *Dug Collection.*



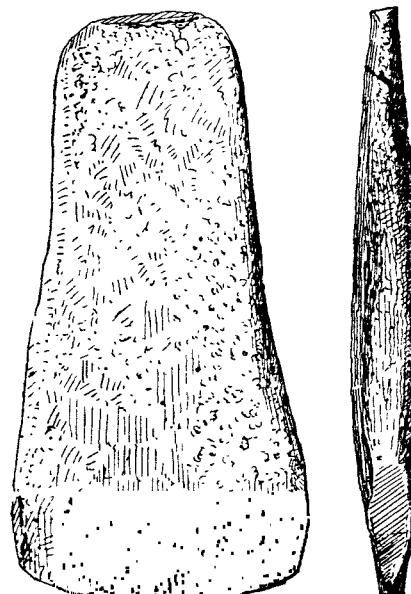
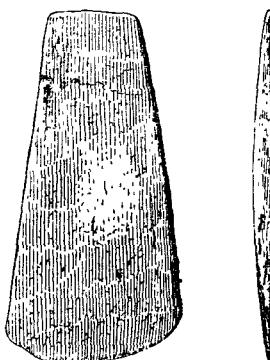




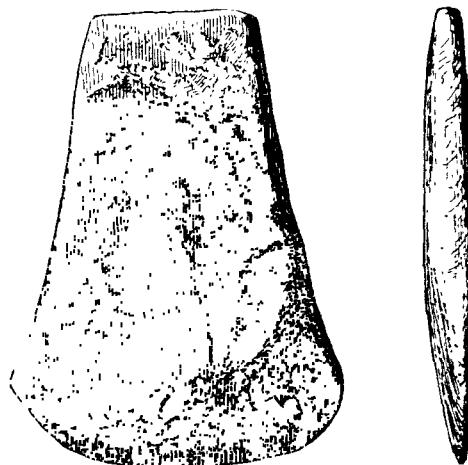
13. DUNMANWAY, CO. CORK (*Day Collection*).  
Ground at edge, and sharp.



15\*. (w. 3.) CO. LONDONDERRY.

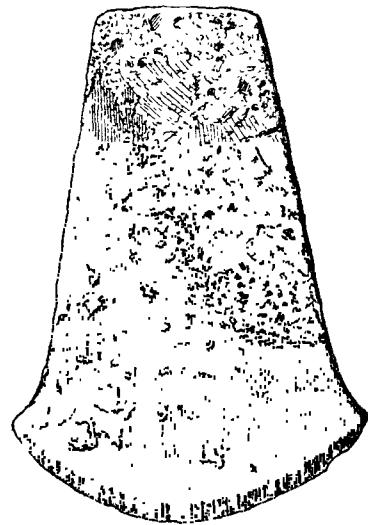


14\*. (1881, 136.) CO. CORK.

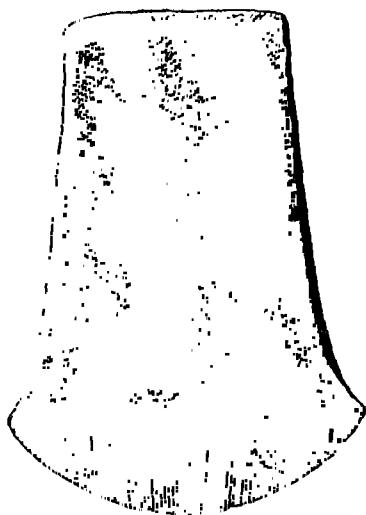


16. (w. 23.)





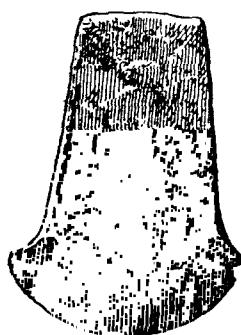
17. (R. 2294.)



18. (R. 2063.)



19. (1881, 137.)



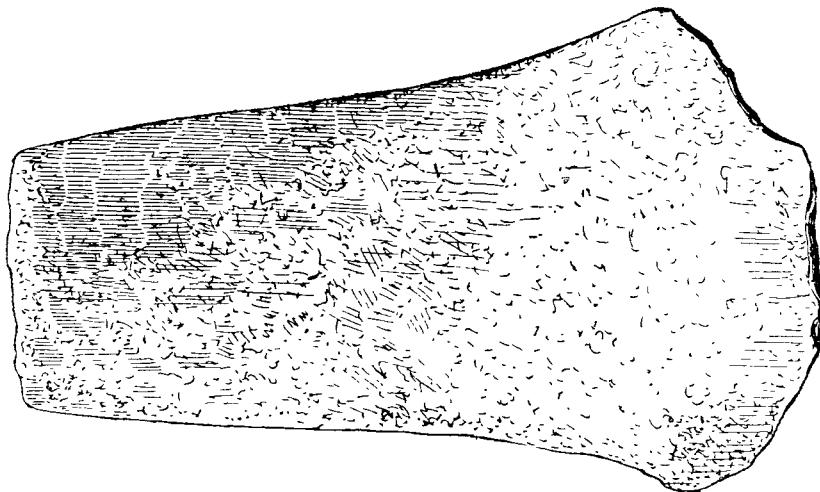
20. (W. 7, Q.Q.)



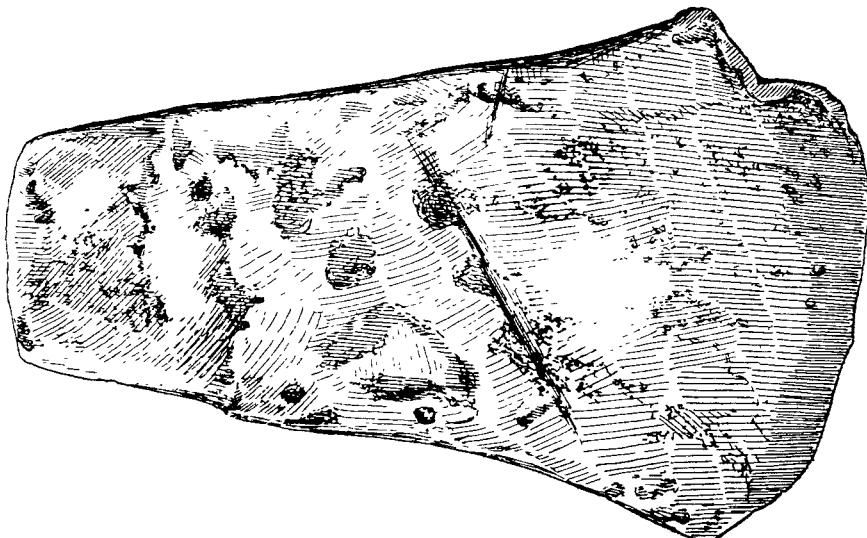
G.C.  $\frac{2}{3}$  linear.

IRISH COPPER CELTS. TYPE I.



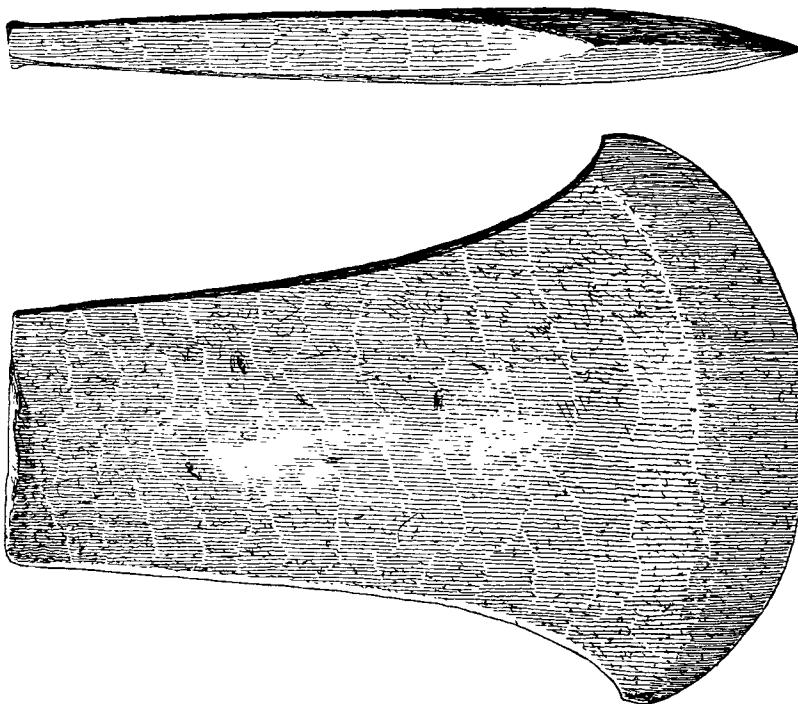


22.\* (R. 1633.)

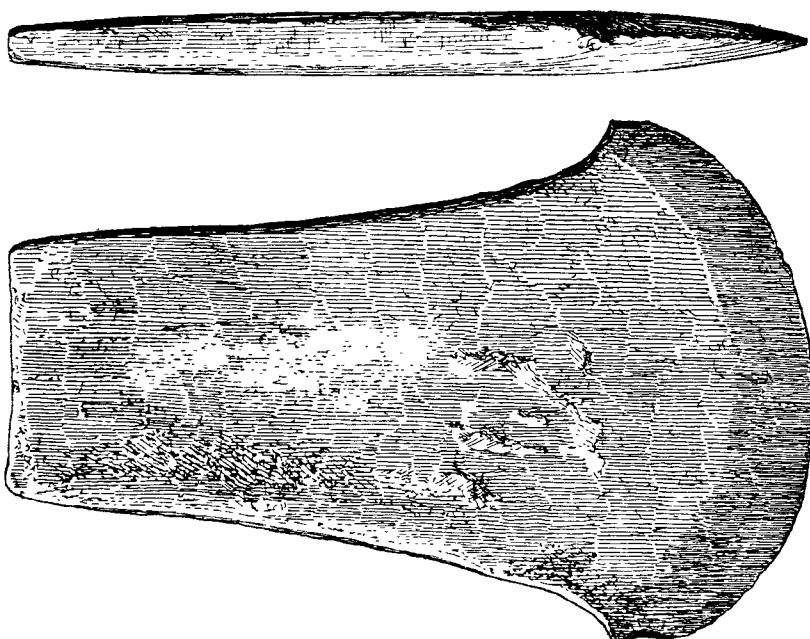


21. (1881, 133), CO. TIPPERARY.



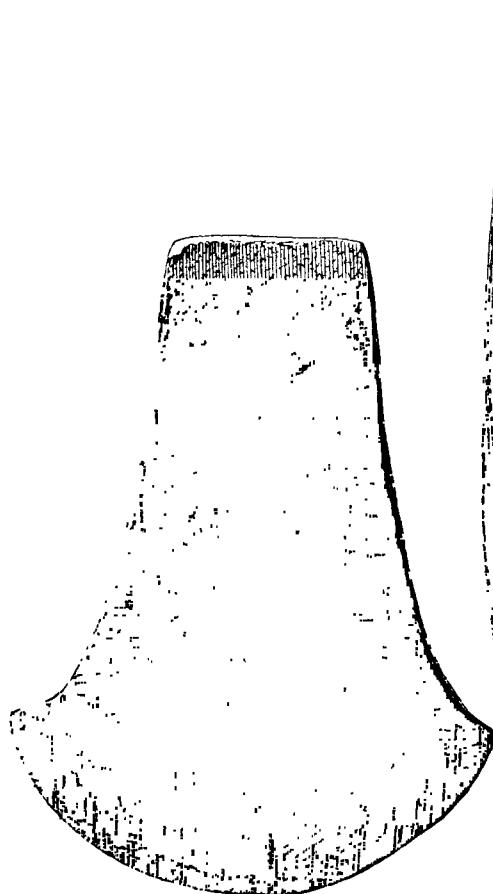


24. (1883, 303.)



23. (W. 14.)





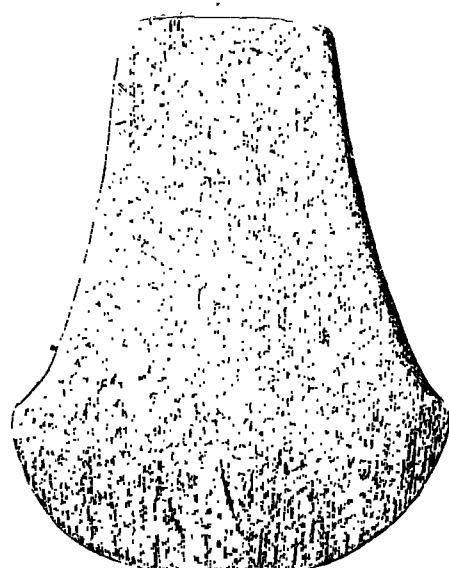
25. (w. 15.)



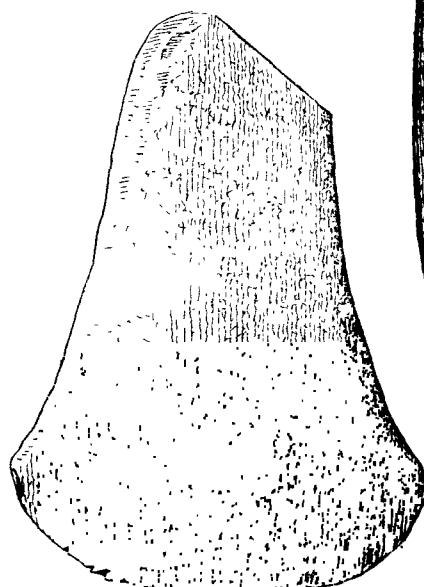
26\* (w. 10 CO. WATERFORD.)



27.\* (w. 17.)



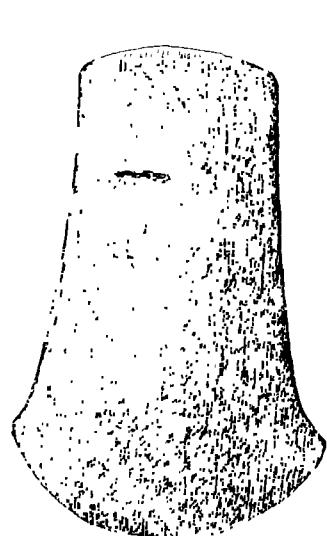
28.\* (w. 16.)



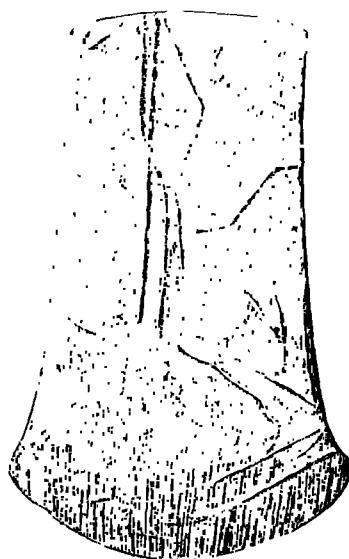
IRISH COPPER CELTS.

G.C.  $\frac{2}{3}$  linear.

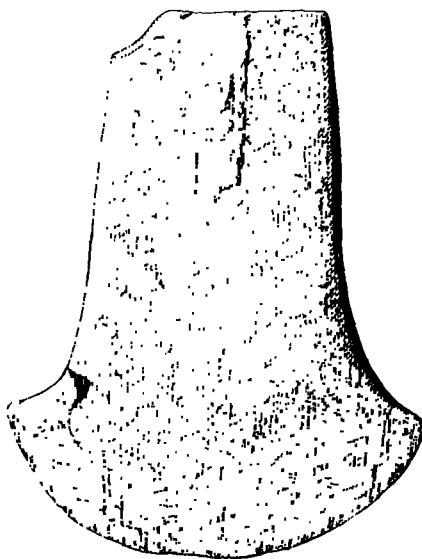




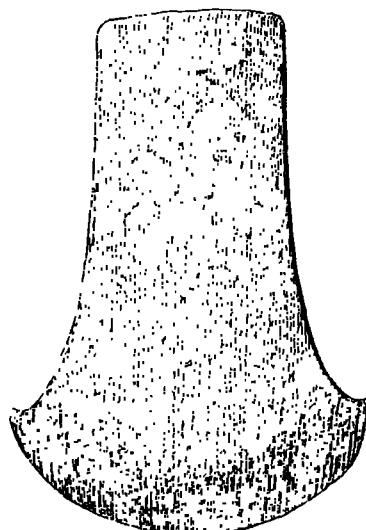
29. (w. 21.)



30\*. (1897 112), CO TYRONE.



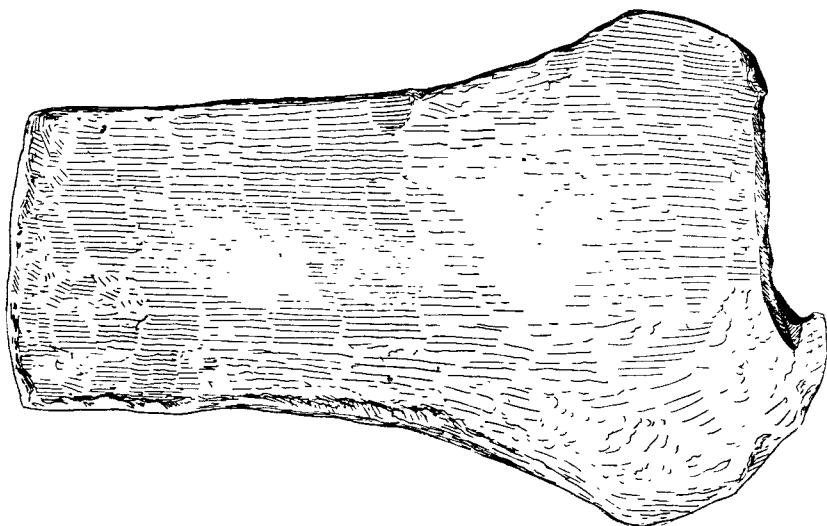
31. (w. 19.)



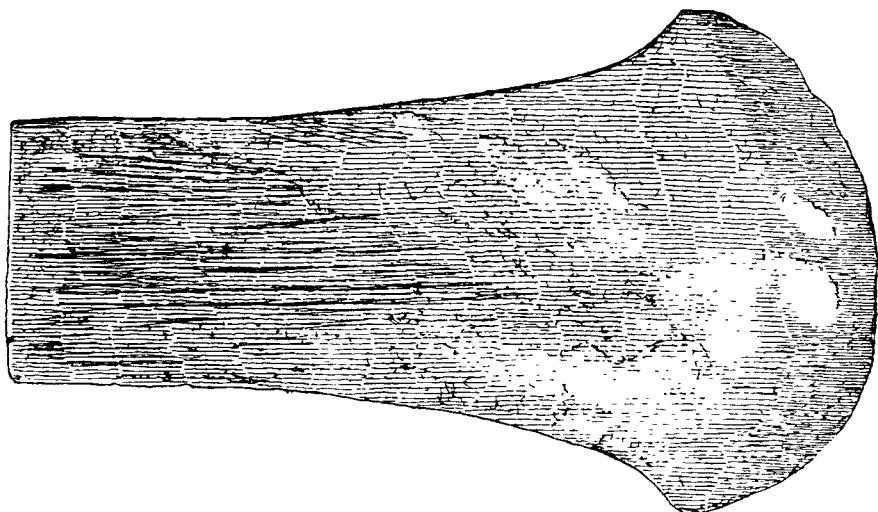
32. CO. ANTRIM, *Knowles Collection.*







34\*. (1896-7.)

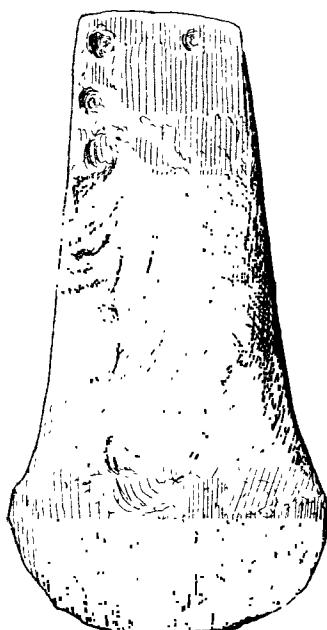


33. (P. 368.)

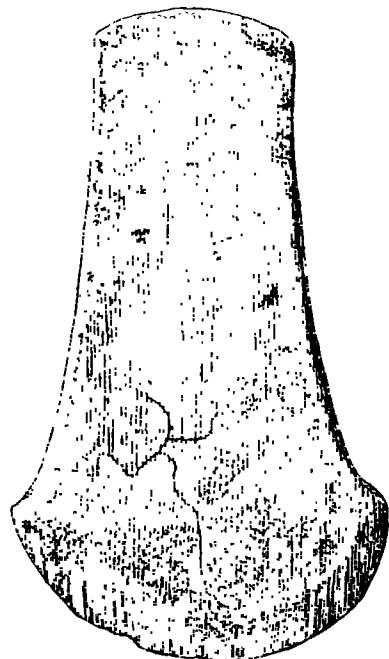
G C.  $\frac{2}{3}$  linear.

IRISH COPPER CELTS.

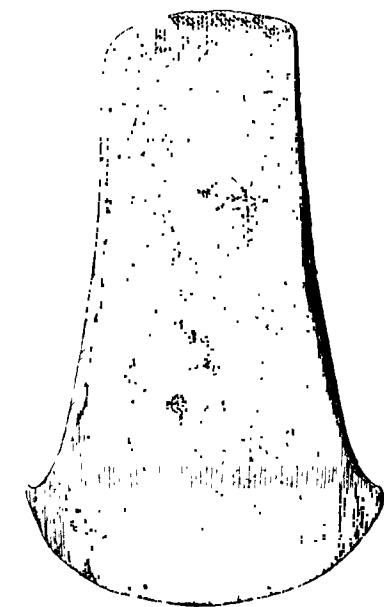




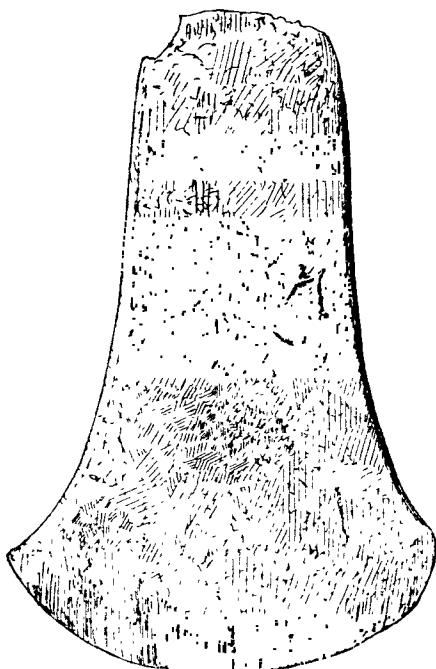
35. (1897, 29.)



36. (1896, 8.)

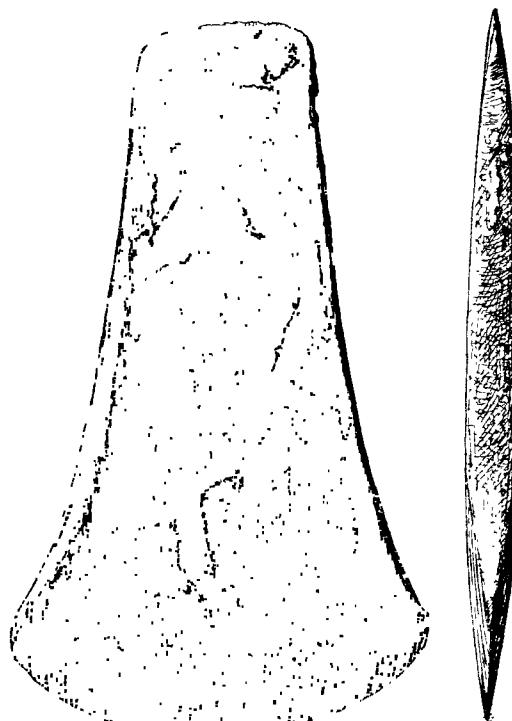


37. (1876, 26.)

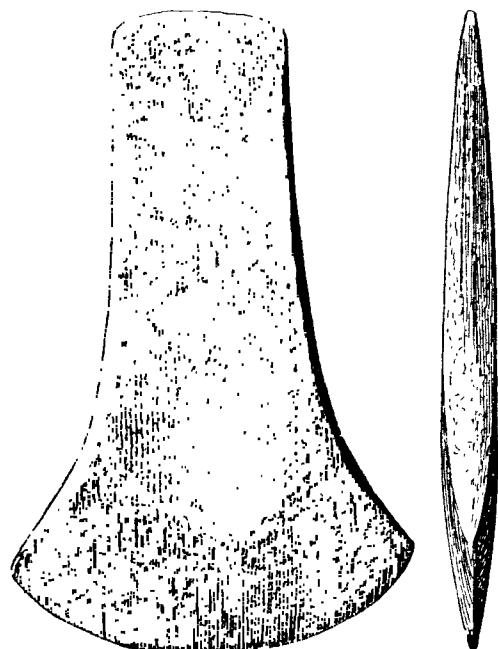


38. (w. 602.)

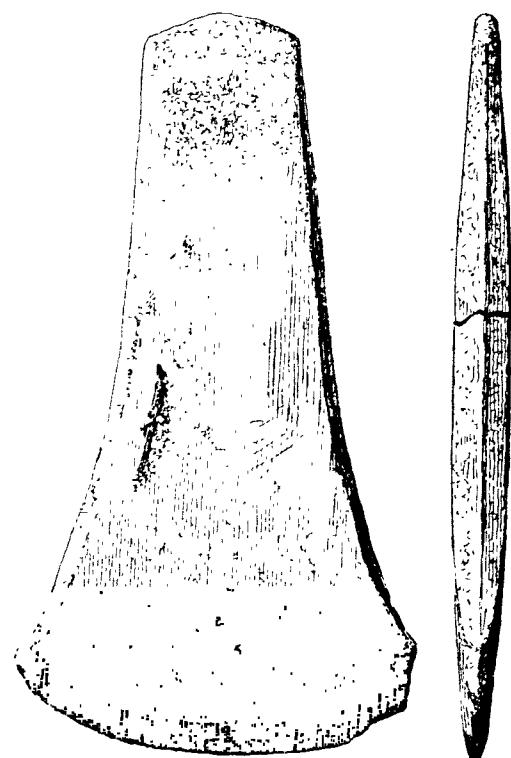




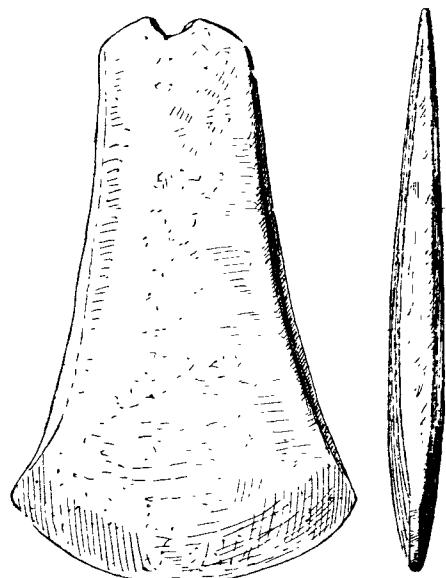
40. (w. 76.)



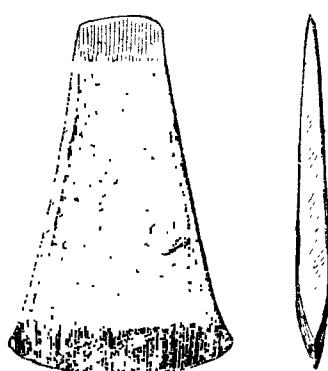
39.\* (1875, 20.)



G.C.  $\frac{2}{3}$  linear. 41\*. (w. 96.)

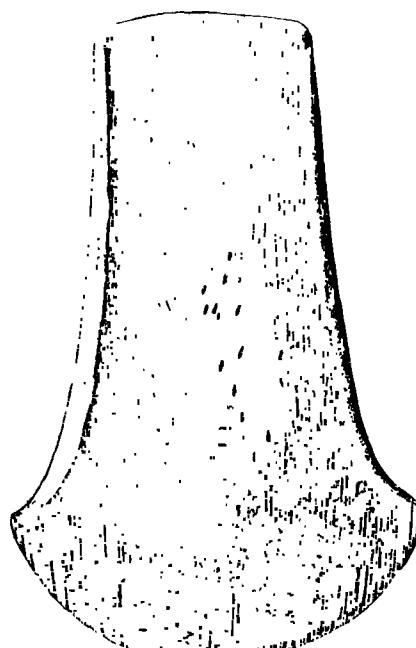


42. BAILEYBEG, CO. CORK. (Dug Collection.)



43. Dug Collection.

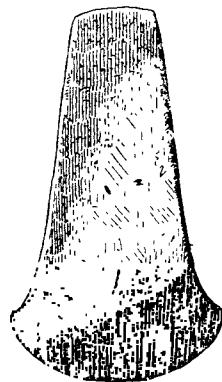
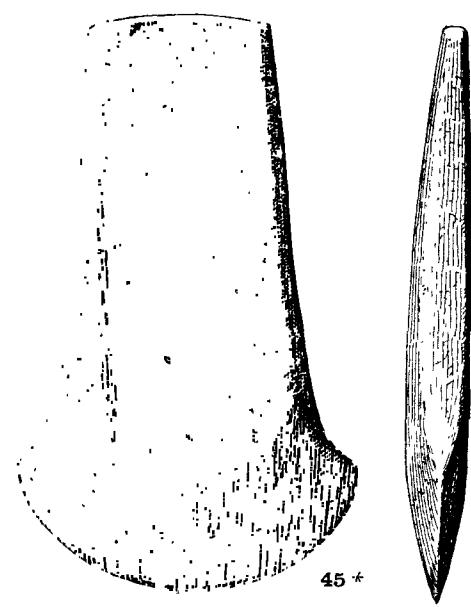




44.



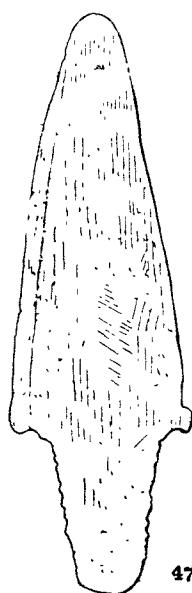
45.\*



46



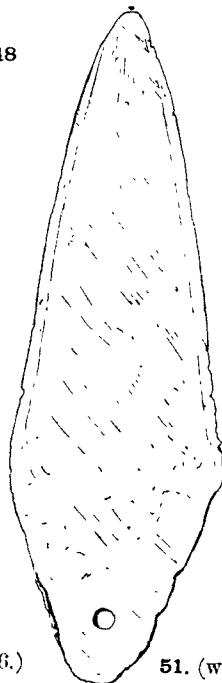
48



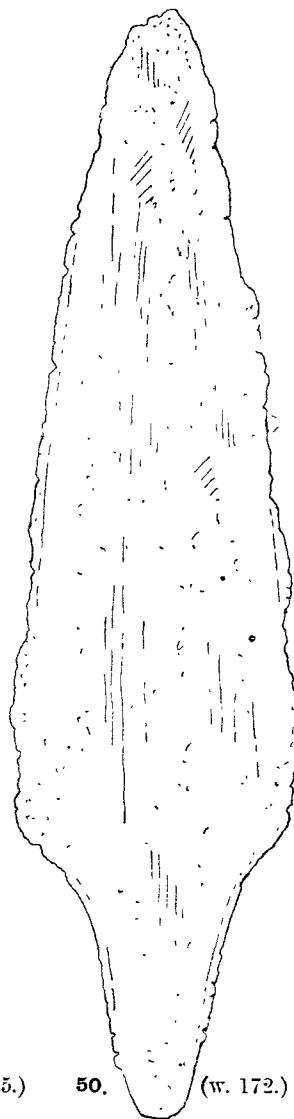
47.



49. (1900, 6.)



51. (w. 175.)

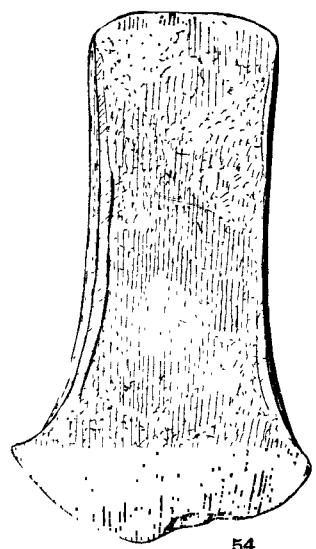


50. (w. 172.)

Nos 44-48 were found together in co. Galway (see p. 276).

G.C.  $\frac{2}{3}$  linear.

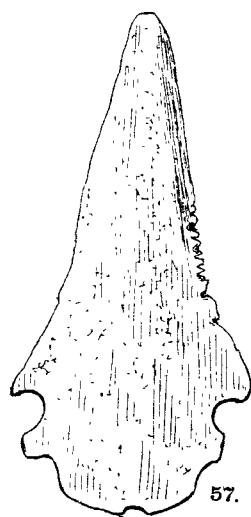




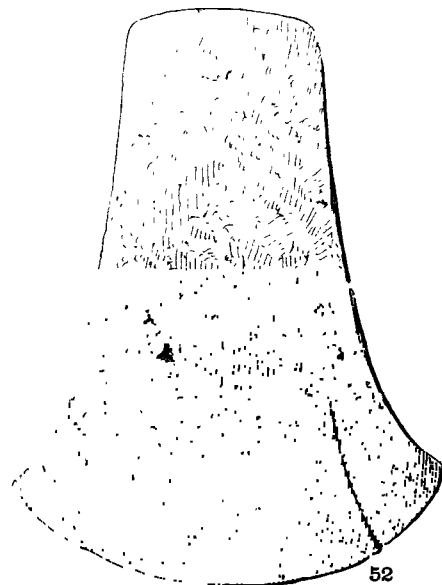
54



52



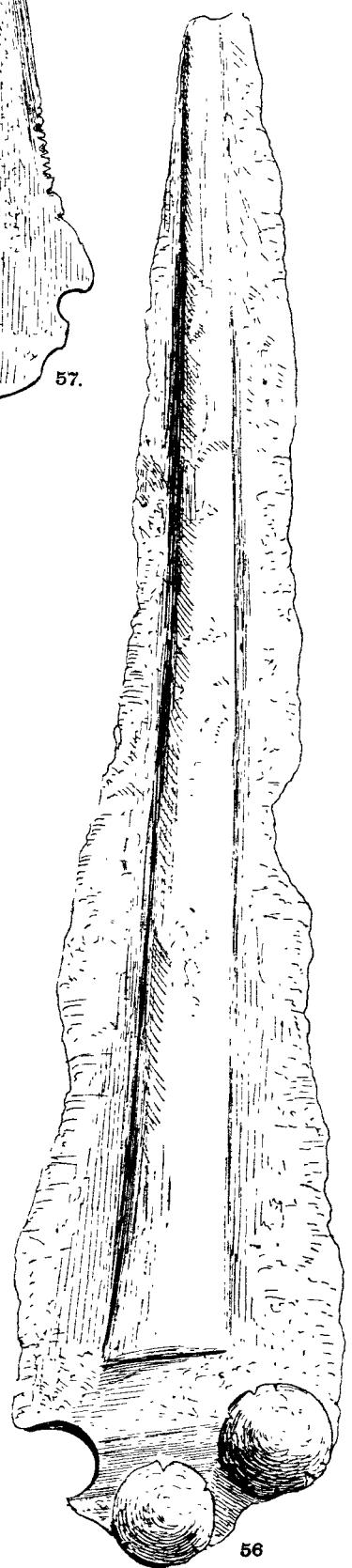
57.



53



55

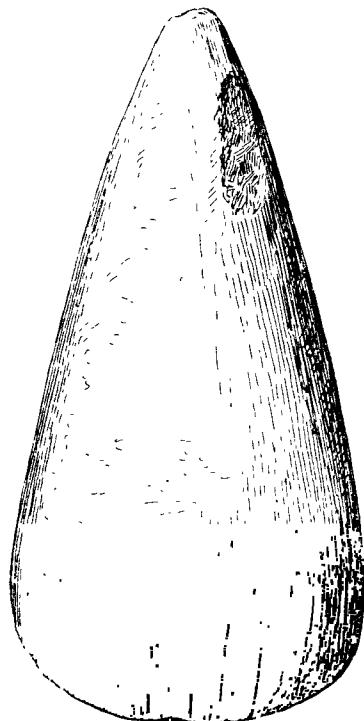


56

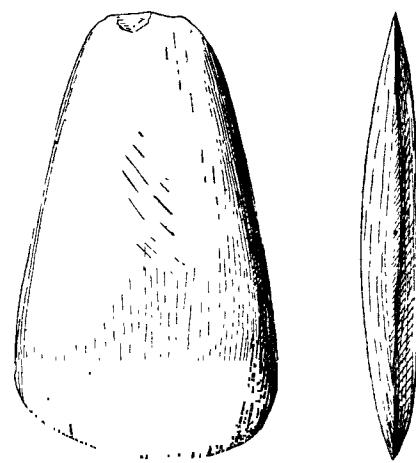
G.C.  $\frac{2}{3}$  linear.

Nos. 54-57 found together, Birr, King's co. (*Day Collection*). See p. 276

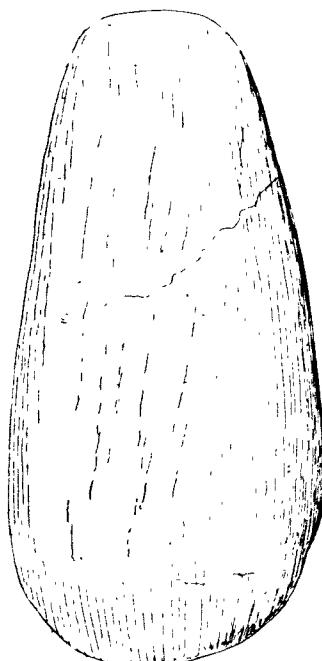




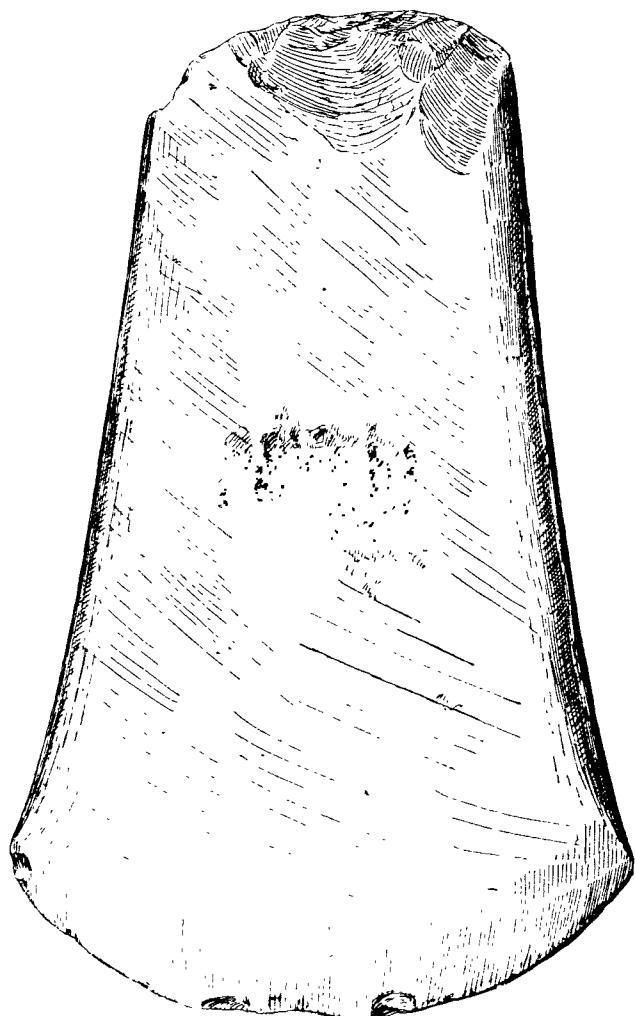
62. (R. 1852), CO. MEATH



58. (1878, 14, CO. FERMANAGH.)



61. (1899, 49), CO. LONDONDERRY.



64. (1876, 1065.)

G.C.  $\frac{2}{3}$  linear.

IRISH STONE CELTS FOR COMPARISON.

## IRISH COPPER CELTS.

BY GEORGE COFFEY, M.R.I.A.

[WITH PLATES XXI-XXXIV.]

THE late Sir William Wilde was, I believe, the first to make a separate classification of the copper celts found in Ireland as distinguished from those of bronze. In his *Catalogue of the Museum of the Royal Irish Academy*, he describes or mentions thirty specimens. The collection of copper celts in the Dublin Museum now numbers 84.<sup>1</sup> At the date of Wilde's *Catalogue*, 1861, only one specimen had been analyzed, No. 16, analyzed by J. W. Mallet about 1853,<sup>2</sup> the rest were classified by "the physical properties and ostensible colour of the metal." The appearance of the metal will seem a doubtful method of classification, but the yellow glint of bronze is very noticeable when contrasted with the red lustre of copper. It may be of interest to mention that in arranging the Dublin collection of celts, I selected those of copper in the first instance by the copper look of the metal. The subsequent analyses of eleven specimens in no case showed the selection at fault. Some of the specimens approach the type of the flat celt of bronze, and I fully expected from type considerations that in these instances a considerable percentage of tin would be found, notwithstanding their copper look. This did not prove to be the case, showing that the colour and lustre of the metal was a fairly safe guide, and that the selection had not been unconsciously directed by type.

The distribution of copper celts in Ireland is not confined to particular localities. Specimens have been found in the following counties: Donegal, Londonderry, Antrim, Tyrone, Sligo, Mayo, Galway, Fermanagh, Cavan, Louth, King's, Kilkenny, Tipperary, Limerick, Waterford, Cork, Kerry, counties which embrace the extreme north and south, and east and west of the Island, and include inland and central counties.<sup>3</sup>

<sup>1</sup> Mr. Day, Cork, has 24; the Museum of the Nat. Hist. and Phil. Soc., Belfast, 10; the Public Museum, Belfast (Grainger Collection), 5; Mr. Knowles, Ballymena, 6; the Murray Collection (now at Cambridge), 8. The number found in Ireland up to the present is probably, therefore, not short of 150.

<sup>2</sup> *Trans. R.I.A.*, vol. xxii, p. 325.

<sup>3</sup> Dublin Collection—Donegal, 1; Londonderry, 1; Antrim, 1; Tyrone, 1; Mayo, 1; Galway, 4; Cavan, 2; Louth, 1; Tipperary, 1; Waterford, 1; Cork, 1.

Day Collection (Cork)—Fermanagh, 1; Kilkenny, 1; King's, 5; Limerick, 2; Cork, 4; Kerry, 3.

Knowles Collection (Ballymena)—Antrim, 3.

Evans's "Bronze Implements"—Fermanagh, 1; Cork, 1.

Sir John Leslie (Glaslough, co. Armagh)—Sligo, 2.

Before proceeding to the description of types, it will be convenient to discuss the analyses.

In 1899 Mr. J. Holms Pollok, B.Sc., Assistant Chemist, Royal College of Science, Ireland, kindly analyzed eight specimens for me, the results were communicated to the British Association, at the Dover meeting in that year.<sup>1</sup> Mr. Pollok unfortunately did not separate the tin and antimony. When I subsequently drew his attention to this, it was found that the residues containing the tin and antimony had been thrown together, so that it was not possible to determine the tin and antimony separately for each specimen without fresh analyses. It was thought preferable to analyze three additional specimens, selected from the beginning, middle, and end of the type series, as giving as well as the separate determination of the tin and antimony in these specimens, a larger range of analyses for comparison. Two of the specimens were analyzed by Mr. Pollok, the third by Mr. D. S. Jardin, A.R.C.S.I.

In addition to the eleven specimens mentioned and that analyzed by Mallet, a flat copper celt from Ireland, in the British Museum, has been analyzed by Mr. W. Gowland, F.S.A., F.S.C. In all therefore, thirteen specimens have been analyzed. The analyses are set out in the following table—the Museum reference is given, and the locality, when known. (See p. 267.)<sup>2</sup>

Making the maximum assumption that the determinations returned by Mr. Pollok as "Tin and Antimony" are wholly tin, it will be seen that in ten specimens out of the thirteen the percentage of tin does not exceed 0·51. In seven specimens it does not exceed 0·1 per cent. In one specimen only (W. 16, Mallet) does it exceed (by a small fraction) 1 per cent.

The analyses, as will be seen from the table, agree substantially among themselves and with those of copper celts from other parts of Europe.<sup>3</sup>

The presence of a small percentage of tin in these celts, as also frequently found in examples from other parts of Europe, raises the question whether the tin is to be regarded as intentionally added or as derived from the copper ore? In other words, whether such celts are to be classed as copper or poor bronze? A good deal of doubt still exists among archæologists on this point.

<sup>1</sup> *Proceedings of the British Association*, 1899 (Dover), p. 872–3.

<sup>2</sup> With the exception of the specimens analyzed by Mallet and Gowland (sulphur, nil and trace), the sulphur has not been estimated. It has been supposed that the presence of sulphur indicated that the copper had been obtained from sulphide ores. Mr. Gowland has, however, shown that this is not necessarily so; the most oxidized ores contain small proportions of iron and copper sulphides, and when reduced, the copper will contain quite as much sulphur as analyses of copper implements show. No point, therefore, turns on the sulphur. *Archæologia*, vol. lvi, p. 275.

<sup>3</sup> See Montelius, *Die Chronologie der ältesten Bronze-zeit in Nord-Deutschland*. The only specimen out of line is Fig. 26 (W 10 Waterford), which contains an unusual amount of lead (2·74). Lead is frequently associated with copper, and the copper deposits in the district from which this celt comes are penetrated in many places by lodes and strings of lead. The celt is well shaped and finished, but the metal is noticeably soft compared with the other specimens analyzed. It is, therefore, probable that the high percentage of lead is accidental.

	Copper.	Tin.	Antimony.	Arsenic.	Lead.	Zinc.	Nickel.	Silver.	Gold.	Iron.	Bismuth.	Total.	
Fig. 2 (1897, 1,313) ...	99.78	0.03	trace	nil	—	nil	0.15	—	nil	—	—	99.96	Jardin.
" 14 (1881, 136), Cork ...	98.73	0.10*	—*	0.18	0.07	nil	0.13	—	nil	—	—	99.21	Pollok.
, 15 (W. 3), Londonderry ...	98.43	trace*	—*	0.76	0.05	nil	0.25	—	nil	—	—	99.49	"
" 22 (R. 1,633) ...	98.76	0.05	0.61	0.78	nil	—	nil	0.17	nil	nil	—	100.37	"
" 26 (W. 10), Waterford ...	96.46	0.05*	—*	trace	2.74	nil	0.21	nil	—	0.25	—	99.71	"
" 27 (1870, 20) ...	98.24	0.83*	—*	0.13	0.12	nil	nil	0.07	—	nil	—	99.31	"
" 28 (W. 16) ...	98.74	1.09	nil	nil	nil	—	0.06	trace	0.08	—	—	99.97	Mallet (sulphur, nil; cobalt, nil).
" 30 (1897, 112), Tyrone ...	97.25	0.51*	—*	1.56	0.17	nil	nil	0.25	—	0.10	—	99.84	Pollok.
" 34 (1896, 7) ...	97.17	0.27*	—*	1.86	0.17	nil	0.11	—	nil	—	—	99.58	"
" 39 (1875, 20) ...	98.24	0.83*	—*	0.13	0.12	nil	nil	0.07	—	nil	—	99.39	"
" 41 (W. 96) ...	99.44	0.06	0.01	0.28	nil	—	0.12	trace	nil	0.08	nil	99.99	"
" 45 (1874, 38), Galway ...	97.68	0.79*	—*	0.76	nil	0.44	nil	0.18	—	nil	—	99.85	"
(British Museum) ...	98.22	0.12	nil	1.04	trace	—	nil	0.16	—	0.17	—	99.71	Gowland (sulphur, trace).†

† This analysis has not been published previously.

\* Tin and antimony.

The chemists do not venture to decide the question. Dr. Gladstone, writing in this *Journal* in reference to the presence of small quantities of tin in some Egyptian implements, observes: "There can be little doubt that the admixture of tin was made for the purpose of hardening the copper, like the arsenic and antimony, and small as it is would have an appreciable effect. That so little was employed in these very early days was probably due to its costliness. It is possible also that it existed originally in small quantities in some copper ores; which would in consequence be much sought after as producing a good hard metal."<sup>1</sup>

Without discussing the particular case of Egypt, it appears to me, from the analyses available, that, as regards Europe, the presence of a small percentage of tin is a more common impurity in copper ores than is generally supposed. The analyses of coarse coppers, both as regards tin and other impurities (arsenic, antimony, etc.), agree closely in many instances with the analyses of the copper celts. In the case of the coarse coppers it is known that the tin and other impurities are derived from the ore. A *prima facie* case is, therefore, I think, made out for the derivation of the tin from the ore, and I do not see that there is a sufficient reason to differentiate the tin from the other impurities in the copper celts. Arsenic and antimony are common impurities in copper ore, and the question of their intentional addition cannot arise unless the quantities are larger than may be expected from the ore. Of two explanations we should accept the simpler, and only when it has been shown that the local ores, from which it may be presumed the copper was obtained, are free from tin, does it seem allowable to argue that the tin has been added, and even then the possibility that the coppers or implements were imported has to be considered.

It has been stated that the copper ores of Europe do not contain tin, at least, those which do not come from tin districts.<sup>2</sup> What is a tin district is a question of degree. Outside Cornwall tin is found in paying quantities, or is known to have been worked in former times in the north-west of Spain, Saxony and Bohemia, near Limoges in France, and in more than one locality in Brittany. In addition to these localities it is known to occur in Silesia and at Findbo in Sweden.<sup>3</sup> The list could be extended, we may add Wicklow in Ireland.

In reference to the presence of tin in copper ores from non-tin districts, Dr. W. K. Sullivan observes: "Even in districts where tin ores are not found, at least in any quantity, some tin may occur in copper ores, such as Gray Copper. According to an analysis made by Herr G. vom Rath, the Fahlerz of Kotterbach contains 0·64 to 0·75 of tin."<sup>4</sup>

<sup>1</sup> *Journ. Anthropol. Inst.*, xxvi, p. 312.

<sup>2</sup> Morlot, *Mem. Soc. Antiquaires du Nord*, vol. v, p. 25.

<sup>3</sup> I take these localities from Sullivan's chapter on the "Sources and Composition of the Ancient Bronzes of Europe," in his Introduction to O'Curry's *Manners and Customs of the Ancient Irish*, p. 419.

<sup>4</sup> p. 414. An analysis of fredricite, a variety of tennantite, gives tin 1·41. This mineral occurs at Falu, Sweden. Dana's *Mineralogy*, Appendix III.

As instances of tin in copper, Sullivan quotes an analysis by Genth of refined Norway copper containing 0·27 tin, and an analysis of Swedish *black copper*, analyzed at the Mining School of Fahlun, containing 0·07 tin.<sup>1</sup>

The investigations of the brothers Siret have established the presence of tin to the extent of 0·4 to 0·5 per cent. in copper ore from the south-east of Spain. This is not a tin district, and, though searched for, no tin ore was found in the localities from which the copper ores were taken. This case is of the first importance, as the evidence is full and definite.

At Parazuelos, ore collected for smelting by the prehistoric inhabitants of the site was identified by analysis with the local ore, chiefly blue and green carbonate of copper. Analyses of the ore and slag left by the ancient smelters gave the following results:—

	Ore.	Slag.
Copper (CuO) ... ... ... ...	25·93	15·32
Tin (SnO) ... ... ... ...	0·10	0·06
Lead (PbO)... ... ... ...	0·60	1·84
Arsenic (As <sub>2</sub> O <sub>3</sub> ) ... ... ... ...	1·86	0·25
Antimony (Sb <sub>2</sub> O <sub>3</sub> ) ... ... ... ...	0·62	0·20
Gold ... ... ... ...	trace	—
Silver ... ... ... ...	trace	trace
Sulphur ... ... ... ...	trace	0·64
Iron (Fe <sub>2</sub> O <sub>3</sub> ) ... ... ... ...	39·56	56·73
Nickel (NiO) ... ... ... ...	0·40	0·61
Non-metallic elements (details, see Sirets)	31·43	24·35
	100·00	100·00

At another station, Campos, the ore and slag gave—

	Ore.	Slag.
Copper (CuO) ... ... ... ...	55·58	30·56
Tin (SnO) ... ... ... ...	0·29	0·28
Lead (PbO)... ... ... ...	trace	trace

<sup>1</sup> These analyses are also set out in Percy's *Metallurgy*, and other works on metallurgy.

Isolating the copper and tin, the figures correspond to—

—	PARAZUELOS.		CAMPOS.	
Metallic copper ... ... ...	Ore. 20·72	Slag. 12·24	Ore. 44·44	Slag. 24·42
" tin ... ... ...	0·08	0·05	0·25	0·25

These figures indicate that the process of smelting was primitive and imperfect. Allowing 10 per cent. for volatilization of other substances in the ore, the Sirets estimate, as the figures show, that the prehistoric smelters were only able to extract about 52 per cent. of the metal from the ore.

The figures further show that at Parazuelos these metals form an alloy in the ore containing 0·38 tin, and in the slag 0·41 tin. It follows from this that the copper resulting from the reduction of the ore should contain about 0·40 tin. In the same way, the ore from Campos should yield a copper containing up to 0·5 tin.<sup>1</sup>

As regards the absence of tin ore in the district the Sirets state:—

“Du moins aujourd’hui n’en connaît-on aucun gisement. M. Moldenhauer, qui depuis de longues années a fait un nombre considérable d’analyses des roches et minéraux les plus divers, nous assure que jamais il n’a rencontré un seul fragment contenant de l’étain dans des proportions tant soit peu importantes. Nous-mêmes avons parcouru le pays en tous sens, visité presque tous les gisements métallifères analysé un grand nombre de minéraux, nous n’avons jamais rencontré d’étain.”<sup>2</sup>

In Cornwall, as is well known, tin occurs in considerable quantities in some of the copper ores. They are distinguished by the smelters as tinny ores. The following quotation from Napier may be recalled in this connection. Many of the distinguishing characters of an ore “depend more upon the foreign matters mixed mechanically with the copper mineral than forming a chemical constituent of it.

... . The minerals composing a vein are generally of a great variety of kinds, containing often copper, tin, antimony, bismuth, iron, nickel, cobalt, arsenic, manganese, silver, etc., besides what are termed the earthy minerals or matrix, such as quartz, lime, slate, etc. In mining, the contents of the vein are taken out, so far as it contains any of the metal or metals sought after; so that what is technically termed a copper ore is often a mixture of everything that the vein contains.”<sup>3</sup>

<sup>1</sup> *Les Premiers Ages du Métal dans le sud-est de l’Espagne*, p. 215.

<sup>2</sup> p. 217.

<sup>3</sup> Napier on Copper Smelting, *Phil. Mag.*, iv (1852), p. 47.

Refined English copper often contains a small percentage of tin. But it is with unrefined coppers that we should compare the celts. The following nine analyses of coarse and blistered coppers are taken from Napier.<sup>1</sup> Blistered copper is the purest form of copper obtained by smelting and requires no further treatment but refining. Re-fusion of coarse copper brings it to the quality of blistered copper.

				Coarse copper.						Blistered copper.		
Copper	...	...	...	95·6	92·5	90·0	93·4	94·8	89·4	97·4	98·0	98·5
Iron	...	...	...	0·3	1·2	1·4	2·4	2·0	2·0	0·7	0·5	0·8
Sulphur	...	...	...	0·4	2·5	1·5	0·6	0·6	2·4	0·2	0·3	0·1
Silica	...	...	...	0·2	0·4	2·6	0·7	0·3	2·4	—	—	—
Tin and antimony	...	...	...	2·1	2·0	0·3	0·5	1·1	1·3	1·0	0·7	—
Lead	...	...	...	—	—	—	0·5	—	—	—	—	—
Oxygen and loss	...	...	...	1·4	1·4	4·2	2·9	1·2	2·5	0·6	0·5	0·6
				100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0

The tin and antimony are not separated in these analyses, but we may presume that an appreciable percentage of tin is present.<sup>2</sup>

In the south-east of Spain, as we have seen, the primitive smelters were not able to extract more than 52 per cent. of the copper and tin in the ore. The loss of tin in the smelting, it will be observed, was comparatively small. It appeared to me, therefore, desirable to ascertain the percentage of tin which might occur in copper ore from a rich tin district. I accordingly wrote to Messrs. Vivian, of Swansea, on the subject in October, 1899. The Messrs. Vivian most kindly offered to have their next consignment of Cornish ores tested for tin. Subsequently, under date January 17th, 1900, Mr. Odo Vivian wrote to me:—

"A short time ago we promised to let you have a few facts with regard to the contents of tin found in the Cornish ores which we used to treat." Mr. Vivian then sets out the following table of wet assays:—

<sup>1</sup> Vol. v, p. 351.

<sup>2</sup> An analysis by Le Play of *black copper* smelted at Swansea gives: Copper, 86·5; iron, manganese and nickel, 3·2; tin, 0·7; arsenic, 1·8; sulphur, 6·9. Two samples of *blistered copper* also by Le Play: (1) Copper, 98·4; iron, 0·7; nickel, cobalt, manganese, 0·3; tin and arsenic, 0·4; sulphur, 0·2. (2) Copper, 97·5; iron, 0·7; nickel, cobalt, manganese, 0·9; tin and arsenic, 0·8; sulphur, 0·1. (The tin possibly includes antimony.) *Annals des Mines*, 4 Sér. XIII, pp. 453 and 486. See also Percy.

—	Tons.	Copper.	Tin.
		per cent.	per cent.
1. Mixture of Levant ...	54, 55, 56, 68, 69, 70	12·3	0·94
2. " " " ...	20, 41, 42	10·4	trace
3. C. B. and Tin Croft ...	55	7·4	trace
4. Devon Great Consols ...	50	6·4	0·75
5. Dolcoath ... ...	6	11·9	trace

Mr. Vivian adds, from Nos. 1 and 4: “It will appear that the tin may have been left in the metal after the smelting operations, and not necessarily added in the form of alloy.”

It will be observed that tin is present in all these assays. Isolating the copper and tin in Nos. 1 and 4 it will be found that the proportions of copper to tin are, in the first case, 92·76 copper to 7·24 tin, and in the second, 89·52 copper to 10·48 tin.

If we can apply to these figures the results of the analyses of ores and slag obtained by the Sirets; that is, if the presence of a large proportion of tin and the character of the ore do not seriously affect the conditions; it follows from the figures for the Cornish ores that the copper obtained by primitive methods of smelting from the ores of a rich tin district might contain a considerable proportion of tin, a proportion in fact greater than that found in the copper celts. The copper ores of Saxony and Bohemia would probably yield results comparable as regards tin to the Cornish ores.

I am not at present able to offer direct evidence as regards the presence of tin in Irish copper ores. The Irish copper mines have not been worked for some years, and I have found difficulties in prosecuting that portion of the inquiry. I hope, however, before long, to be able to complete this branch of the subject.

Copper is found in many parts of Ireland. The chief mining districts are on the south-east and south coasts, in the counties of Wicklow, Waterford, Cork and Kerry. It has also been mined on a small scale in Clare, Limerick, Galway, Leitrim, etc.

Tin has been found in considerable quantity in the Goldmines River, Ovoca, in the copper district of Wicklow. Mallet says: “The occurrence of this mineral (tin) in the sand is mentioned by Weaver in his reports on the gold stream-works, but he does not seem to have been at all aware of the large quantities in which it exists.” He adds that he obtained  $3\frac{1}{2}$  lbs. of tin from about 150 lbs. of sand.<sup>1</sup>

<sup>1</sup> *Journ. Geol. Soc. Dublin*, vol. iv (1848-50), p. 272. W. W. Smyth, *Records of the School of Mines*, vol. i, p. 404.

This is a very high return, and if at all general would have placed the Wicklow tin in the first rank of stream-works. Tin has also been found at Dalkey in the co. Dublin, where it occurs in a lode with lead and zinc. The lode has been worked for lead and is now exhausted.<sup>1</sup>

Nennius mentions tin at Killarney (Loch Leane), co. Kerry, and Dr. Smith, author of the *History of Kerry*, states that he picked up small specimens of ore at Killarney which contained some tin,<sup>2</sup> but this locality requires confirmation.

From what has already been established as to the occurrence of tin in copper ore, and from the fact that tin has been found in quantity in at least one locality in Ireland, it is I think more than probable that it will be found in some of the Irish copper ores. Indeed, the presumption from the general evidence appears to be so strong, that a few negative analyses would not upset it.<sup>3</sup>

Mr. Gowland has pointed out that the ores which would be first sought for copper, would be the oxidized ores—oxides and carbonates. This he infers from the fact that they are surface ores, and are more easily reduced than the sulphides. The oxidized ores require only the single operation of smelting, whereas the sulphides must be first calcined. Malachite occurs at Tinnehely in Wicklow, close to the tin, and carbonate and black oxide of copper at Barnavore. In the Upper Cronbane and the Connary mines, in the same county, the principal deposits of copper consist largely of black oxide, of which the portions near the surface chiefly consist.<sup>4</sup> Large deposits of the carbonates of copper occur in the Cork and Kerry mines.<sup>5</sup>

#### TYPES.

Figs. 1 to 10 represent the rudest forms of copper celts. They closely resemble the stone celt forms found in Ireland. A few of the latter are illustrated for comparison (Figs. 59, 60, 63 (p. 274) and Plate XXXIV). Fig. 1 furnishes particular evidence on this head, the pointed butt being distinctive of a class of stone celts, an example of which is shown in Fig. 62. This is the only

<sup>1</sup> Kinahan; "Irish Metal Mining," *Journ. Roy. Geol. Soc. Ireland*, vol. viii, p. 11.

<sup>2</sup> *History of Kerry*, p. 125.

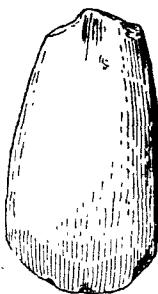
<sup>3</sup> Gray copper ore is frequently mentioned in the *Geological Survey Memoirs*, especially for the Cork and Kerry districts, but this appears to be chiefly vitreous copper (chalocite, Cu<sub>2</sub>S), and not true Gray Copper. For this use of the term see Kane, *Industrial Resources of Ireland*, 2nd Edition, p. 185, and Percy, p. 310. Kane mentions a large deposit of this ore near Dungannon, co. Tyrone (a northern locality), p. 200. True Gray Copper, arsenical variety, occurs in quantity in the Ardtully lode, Kenmare Valley, co. Cork. An analysis of the ore from this lode does not contain tin, but it is not clear that it was looked for. *Journ. Geol. Soc. Dublin*, vol. vi, p. 212.

<sup>4</sup> Smyth, *Records of the School of Mines*, vol. i, pp. 362, 380, 383.

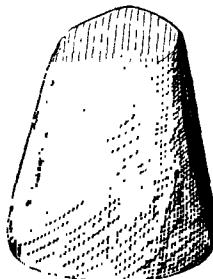
<sup>5</sup> *Geological Survey Memoirs*, Sheets 197 and 198, "Green carbonate of copper occurs abundantly between the dark purple slates and yellow shales of what may be called the passage beds between the old red and yellow sandstones, in a vast number of localities in the south of Ireland." Sheet 184, p. 37.

instance of a copper celt of this form which I know of from Ireland. The majority of the other examples resemble common forms of Irish celts, more or less ovate and thinned down to both ends.

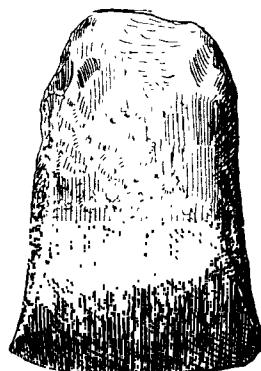
It may seem doubtful whether these stone celt forms are to be regarded as ingots cast in the traditional form of the stone celt, or unfinished implements. In several instances no attempt has been made to grind them to an edge (Figs. 1, 2, 3, and 8). In other cases, however, the celt has been rubbed down more or less over the body and the edge ground for use (Figs. 4 to 7). The range in size, moreover, appears to support the intention of their being implements. Figs. 6 and 7 may be compared with the small stone celt (Fig. 59). In Figs. 11 to 13 we see the beginning of the development of the metal type, with expanded cutting edge. These three examples must, I think, be regarded as unfinished implements, the edge of Fig. 13 is ground and sharp, while the marks of casting have been left untouched over the body of the celt, so that in this respect it resembles the stone celt types. This tends to support the view that the rude celts (Figs. 1 to 8) are implements cast in the prevailing types of the stone celts, rather than ingots cast in a traditional form. In fact, the examples referred to (Figs. 11–13) show a departure in form. Fig. 10 may be compared with the small highly polished



59. (w. 199.)



60. (w. 194.)



63. (1897, 289) NORTH OF IRELAND.

STONE CELTS FROM IRELAND (cf. PLATE XXXIV) FOR COMPARISON WITH PRIMITIVE COPPER CELTS.

stone celt (Fig. 60), a type not uncommon in Ireland. Copper celts of the stone type are relatively rare. The Dublin collection contains ten of this class.

The developed metal form is seen in the examples beginning with Fig. 15. I have placed this celt at the head of the series as it retains the proportions of the stone form. It is of nearly pure copper containing only a trace of tin, and has been rubbed down to an even surface, to which may be attributed the sharp and irregular form of the butt end.

In the development of the metal form, the most distinctive feature of which is the expanded cutting edge, two types appear, diverging gradually one from the other. The thick, square, rectangular butt end is common to both, and is the normal form of butt of the developed copper celt,

Type I is relatively broad compared with the length (Figs. 16 to 28). The expansion or flare of the cutting edge in some of the larger examples is a very noticeable feature, and the concave curves of the sides are correspondingly marked, giving the celt a broad battle-axe appearance. This type would seem to lead up through examples such as Figs. 24 and 25 to the broad bronze celts with widely expanded cutting edge. (Wilde, Fig. 247).

Type II. The cutting edge is relatively narrower and the sides straighter, the form as a whole presenting a longer and more slender appearance (Figs. 29 to 42). This type appears to lead up to the common flat celt type of bronze. (Wilde, Fig. 248).

In many specimens types I and II over-lap, so that it is not possible to make a strict classification, but taking the series as a whole, the tendency to evolve the two types, as described, is, I think, apparent.

As the copper celts approach the type of the flat bronze celts, it will be noticed that there is a tendency to thin down the butt end and also to round it off, instead of the straight-across termination of the middle members of the series. This is better represented in type II than in type I.

The nearly equal thickness and flat faces of the middle members of the series also gives way to a gradual swelling of the body of the celt from both ends (in section), the thickest part of the celt at the same time moving up from the cutting edge towards the centre. These features mark the transition in the section from the stone to the metal form. In stone the thickest part of a celt is generally below the middle line, it being necessary, owing to the nature of the material, to allow as much substance as practicable at the cutting edge. In metal the thickest part of a blade is the back, corresponding, in a celt, to the middle of the implement; the thinning off from the middle line to the butt end being for the purpose of hafting, need not be taken into account. In a few instances indications of rudimentary flanges will be noticed (Figs. 40, 43, 44 and 54). These can, indeed, hardly be called flanges, being only a slight upsetting of the sides, afterwards rubbed flat. It is usually only noticeable on one face. Thus in Figs. 44 and 54 there is hardly any trace of an upset on the faces which are not shown in the figures.

Reviewing the evidence of type, it may, I think, be claimed that a development of form is found within the copper series. At one end are rude and heavy forms which look backward to the stone axe, at the other forms which approach more and more closely the early bronze celts. If this is granted, it excludes an explanation which has often been put forward to account for the copper celts, namely, that they represent merely local or temporary scarcity of tin. We are compelled by type-reasons to place them at the head of the metal series.

Collateral evidence supports this conclusion. (a) The expanded cutting edge is essentially a metal form. It has reacted on the stone celt, presumably in the period of transition between stone and metal. Figs. 63 and 64 illustrate two specimens of stone celts in the Dublin collection in which this is apparent. There are other

examples in the collection. Considering the series of stone celts apart, celts of this class must be placed typologically at the close of the series. We thus have on the one hand the evidence of the stone celts in which the form has been influenced by the metal type, and, on the other, the evidence of the copper celts in which the influence of the stone form has survived. From both sides, therefore, evidence of transition is forthcoming.

(b) The copper celts never show any trace of a stop-ridge. This feature first appears, in a rudimentary form, in the bronze celts frequently accompanied by rudimentary flanges.

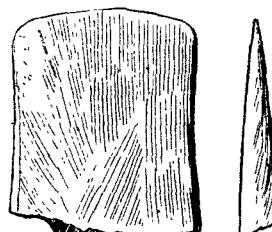
(c) The copper celts are never ornamented, whereas the flat bronze celts are often richly decorated with simple punched patterns.<sup>1</sup>

#### FINDS.

The greater number of the copper celts in the Dublin collection were acquired at a time when little attention was paid to the circumstances of the finds and association of objects, or formed part of private collections, bought from time to time, to which the same remark applies.

The following are the only finds of which I have been able to obtain information:—

- (1) Three copper celts, three copper awls, and a copper knife, found in 1874, in a bog at Knocknagoge, Kilbannon, co. Galway. Purchased by Royal Irish Academy from the finder, Michael Rafferty. Figs. 44–48. One of the celts (Fig. 45) has been analyzed (tin and antimony 0·79). The metal of all the implements in this find is identical in colour and surface lustre, and there can be no doubt that it is of the same quality.
- (2) Three copper celts, a fragment of a fourth (butt end), a copper halberd, and a short blade of copper of somewhat similar form, found in 1892, near Birr, King's Co. (Figs. 52–57). They were brought to a Mr. Morrison of Birr, from whom they were obtained by Mr. Robert Day of Cork, in whose collection they now are. The finder stated that they were found under the bog in the white clay. The metal of these six objects is red copper, and appears to be of the same quality in all the specimens. None of them have been analyzed, but the following extract from Mr. Morrison's letter to Mr. Day, at the time they were discovered, may be given as an independent opinion: "They are certainly not bronze but seem



55

<sup>1</sup> This applies generally to copper celts. The only exceptions to the contrary, with which I am acquainted, are six copper celts found near Malmö, Sweden, the faces of which are decorated with concentric lines. These celts were portion of a large find which included bronze celts and other bronze objects. The celts in question are of advanced early bronze type, with well marked flanges (Montelius, *Chronologie der ältesten Bronzezeit*, p. 55). How

to be all copper." The fragment (Fig. 55) has been rubbed down to a sharp edge at the butt, apparently for use as a small implement.

(3) Three copper celts (of type Figs. 23 and 24), found in 1868, when ploughing at Cullinagh, near Beaufort, Killarney, co. Kerry. Day collection, obtained through a friend from the finder.

The evidence of these finds is very consistent. They do not include any object of a late type. The celts in No. 1 are of good copper type, the awls are of an early form, and the knife I consider also to be an early type. It was evidently secured in the handle by a whipping of some sort of cord. This form of hafting may be regarded as derived from the stone age. Two other copper knives of this type have been found in Ireland (Fig. 49, found in a bog at Boho, co. Fermanagh, and Fig. 50, the locality of which is not known). The copper knife or dagger with single rivet-hole, Fig. 51 (locality not known), may perhaps be placed in the same class. These four examples are the only blades of copper, exclusive of halberds, in the Dublin collection.

The halberd in find No. 2 is admittedly an early form. It probably belongs to the close of the copper or beginning of the bronze period. Only one halberd in Dublin collection has been analyzed. It contained 2·78 per cent. of tin. Until a sufficient number of specimens have been analyzed we cannot draw a conclusion. It will be observed, however, that the celts in this find are of late copper type, compare Fig. 39 of the type series.

The remaining find calls for no special remark. But it is important in conjunction with the other finds as evidence of a number of copper implements having been found together without any association of bronze in widely separated localities.

In conclusion, reverting to the distribution of copper celts mentioned at the beginning of this paper, it will now be seen that the fact that they have been found over, we may say, the whole of Ireland, is significant.

Only three explanations are possible:—

- (1) The copper celts were made of copper for a special purpose. The development of type within the celt series negatives this explanation.
- (2) They represent local costliness or want of tin. The type series negatives this explanation also.
- (3) They represent a period in which copper was in general use throughout Ireland, before bronze was known. This explanation meets the facts, and is enforced by the finds of associated copper implements.

I should perhaps note that all the figures in the text and the plates are reduced from my own full-sized drawings to one-half natural size, or approximately  $\frac{2}{3}$  linear. The specimens with asterisk have been analyzed. Museum references are given in each case. My thanks are due to Messrs. Day and Knowles for kindly placing their rich collections at my disposal.

these celts come to be of copper (tin 0·04 and 0·31) we cannot say, but they cannot be held to impair the general statement, which is absolutely true for copper celts of copper type.

## NOTE A.

The high percentage of tin in some of the Cornish copper ores (no doubt also to be found in some of the copper ores of Central Europe) may have a bearing on the question of the origin of bronze. In *Prehistoric Times* (Appendix) Lord Avebury quotes the opinions of experts against the probability, if not possibility, of bronze having been produced from a mixture of copper and tin ores, or from a mixed ore. These opinions, however, are chiefly directed to the question of how the ancient bronze was produced (what we may call the normal bronze of the Bronze Age), and not to the question of its discovery, which is a different question. The opinions of experts based on the experience of modern smelting, the object of which is to obtain a clean slag, are of doubtful value on that point. As far as I can see, the question turns on whether the loss of tin in the more or less open furnace of a primitive smelter would be compensated for, and to what extent, by its retention in the metal due to the low temperature of the furnace; and by the impossibility, therefore, of extracting more than about 50 per cent. of the metal from the ore by a primitive process of smelting. We require direct experiments on this point.

## NOTE B.

As far as I am aware, no copper celts have been published from England or Scotland. I am able to place the following on record. (1) A copper celt in the British Museum (copper 98·67, tin 0·05) stated (*Archæologia*, vol. vii, p. 283) to be Irish: Mr. Gowland has since ascertained that the locality is incorrect; the specimen is from Durham. (2) Cambridge Museum, two specimens in local collection, from the Fens. (3) Taunton Museum, a flat triangular copper celt from Staple Fitzpaine, Somerset; noted by Hon. John Abercromby, F.S.A.S. (4-7) National Museum, Edinburgh, four examples: Da. 1 (Wigtownshire), 14 (no locality), 43 (Colonsay), 58 (Perthshire). Also some other specimens of which I am doubtful without closer examination. None of above, with the exception of the specimen from Durham, have been analyzed, but I feel confident, from the appearance of the metal, and from the type, that they belong to the copper series. Other specimens will probably be found in local and private collections if looked for.

## DISCUSSION.

Mr. MYRES referred briefly to the confirmation of Mr. Coffey's conclusions which is supplied by the series of early copper and bronze implements in the Eastern Mediterranean. He laid special emphasis on the necessity, within the latter area, of noting the occurrence of rivetless hafted knives, which he had occasionally observed in Cypriote examples, but which had too often been put aside as imperfect or corroded specimens. An analogous example of a stone celt (from Melos) which shows clear traces of the influence of metallic types, will be found in *Journ. Anthr. Inst.*, XXVII, Pl. xi, 2.

Mr. BALFOUR: Mr. Coffey's interesting paper deals in a practical and scientific manner with a very important problem in the study of the development of human

culture, and the evidence which he brings forward tends greatly to confirm the belief in the existence of a definite Copper Age in Europe, bridging over the gap separating the Neolithic and Bronze Ages. On logical grounds it has long been assumed that such an intermediate period must have existed, as through such a stage alone would there be evidence of that continuity in the development of the human arts which there is reason to believe in great measure occurred from neolithic times onward. A certain amount of direct evidence in support of this view has been steadily accumulating, and, although not as yet conclusive, must command the serious attention of archaeologists. It seems likely that we may look forward to a time in the near future when all doubt as to this continuity in the advancement from the Stone to the Metal Ages will be set at rest. Mr. Coffey, no doubt through an oversight, made no reference to a paper of the first importance which, although read before a learned society so long ago as 1869, clearly foreshadowed, in no uncertain terms, the views which Mr. Coffey has so ably expressed. I refer to the lecture delivered by General Pitt Rivers on June 18th, 1869, before the Royal United Service Institution, being the second of his classical series of lectures on "Primitive Warfare." In this General Pitt Rivers deals at length with the development of the "celts" of the Bronze Age, and the successive stages through which the highest and latest forms were gradually evolved from the primitive and simple ones. He made a strong point of the fact of the most primitive types, whose resemblance to and probable derivation from typical neolithic shapes he drew attention to, being of pure or nearly pure copper. From the specimens and information which he possessed he was able to make this clear, particularly in regard to Irish bronze "celts," but such evidence as he had from other countries supported his views. He published an ingenious and most valuable diagram-table illustrating his remarks, and I venture to think that in dealing with this subject the researches of General Pitt Rivers, eminently characteristic as they are of that brilliant investigator, should on no account be overlooked. It is greatly to his credit that the views expressed in a lecture delivered over thirty years ago should practically hold good at the present day, and are supported by the most recent investigations.

Dr. GLADSTONE expressed his admiration of the manner in which Mr. Coffey had worked out his research into the composition and probable source of these very ancient Irish celts. He has greatly strengthened our reasons for considering that the small amounts of tin which are found in ancient metallic tools in the countries of antiquity were not added intentionally, but were derived from the ores. If these very small quantities of tin, antimony or arsenic do really increase the hardness of copper, the employers of such weapons would find out where the best article came from, and thus these most valuable implements would be in the greatest demand among the ancient nations.

## THE LENGUA INDIANS OF THE PARAGUAYAN CHACO.

BY SEYMOUR H. C. HAWTREY.

[PRESENTED DECEMBER 10TH, 1901. WITH PLATES XXXV-XLI.]

BEFORE proceeding to the study of the Indians of the Chaco we must consider the geographical conditions of the land in which they live.

The Grand Chaco extends from latitude 20° S. to latitude 28° S., south of the watershed between the head waters of the Paraguay River and those of the Amazon's tributaries. It extends southwards and south-westwards till it merges into the cultivated plains of the Argentine Republic; it thus embraces parts of three Republics, the Argentine, Paraguayan, and Bolivian. This country is extremely flat, and several rivers flow from the Andes mountains right across the Chaco, and empty themselves into the Paraguay River, the two most worthy of notice being the Vermejo and the Pilcomayo, which last forms the boundary between the Paraguayan and the Argentine Chaco, and is further described on p. 289.

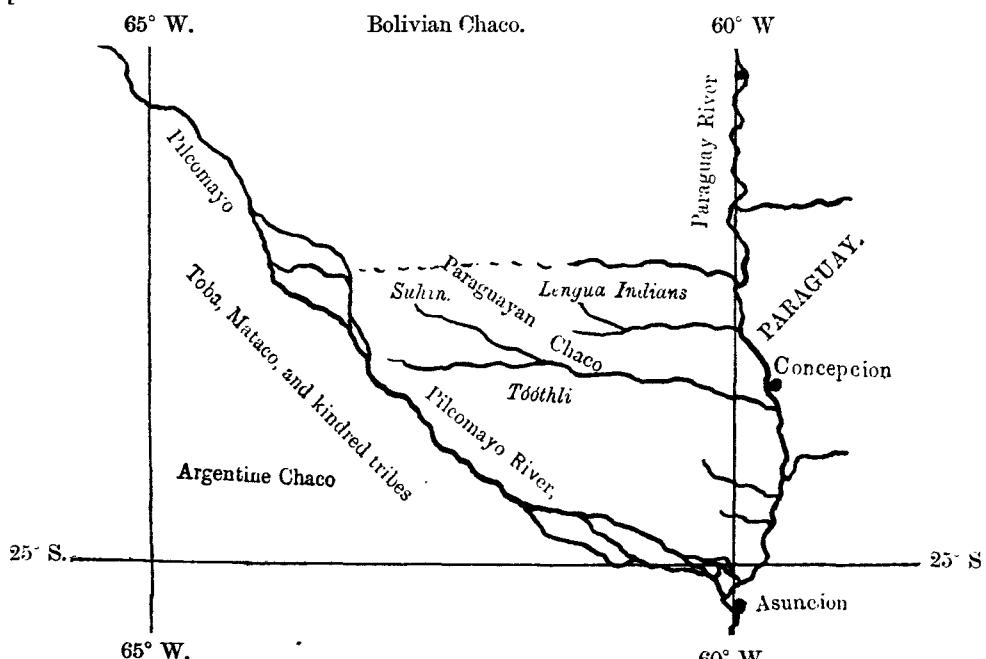


FIG. 1. SKETCH MAP OF THE PARAGUAYAN CHACO.



A LENKUWA—A COMMON TYPE.

(Note the enlarged ear-lobes and drum-like ear discs.)



LENKUWA BOY. METEGYAK (*i.e.*, "BORN WHEN FATHER WAS ON A JOURNEY").

(Note the lamb's wool armlets and head ornament.)



LENKUWA BOY : MANGWEAM-AI.

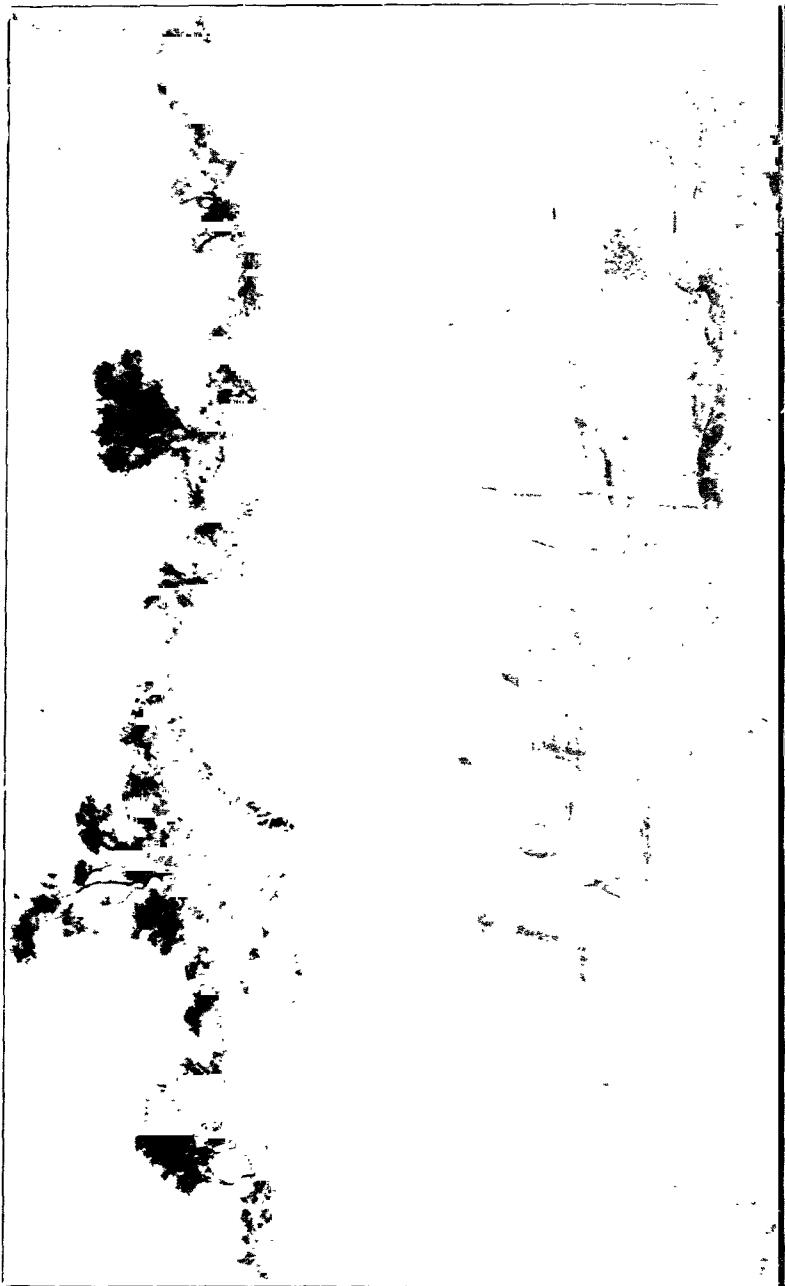
The tree is that which is used for making fire sticks.



LENKUWA FACE PAINTING.

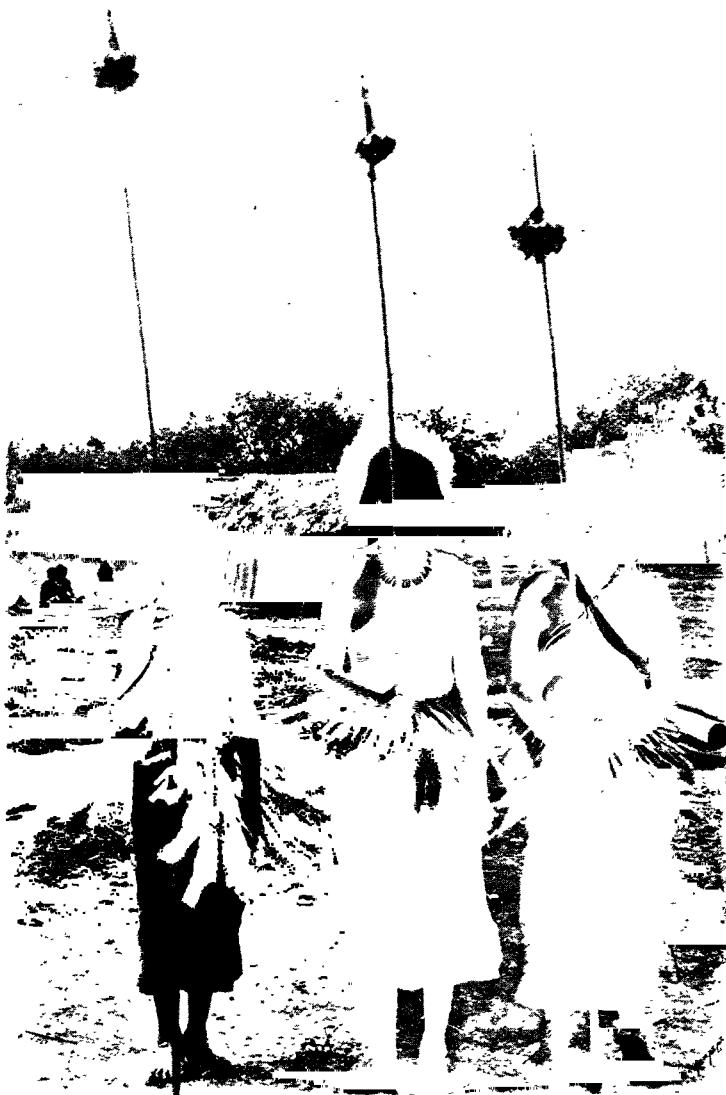
With the aid of a small round mirror.





A LENGUA VILLAGE.





1. LENQUA WOMEN DRESSED FOR A DANCE.

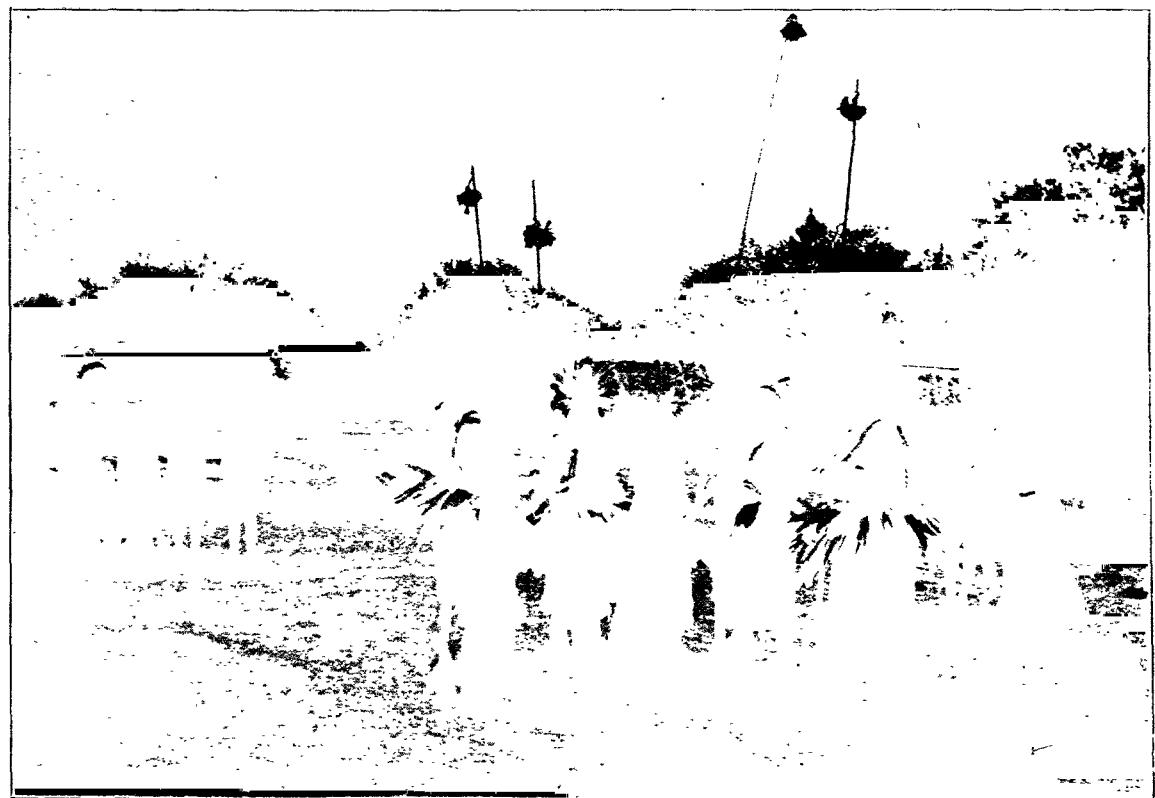


2. POTTERY-MAKING.





1. LENGUAS PLAYING THE GAME "HASTÁWA."



2. WOMEN'S DANCE AT A LENGUA FEAST.

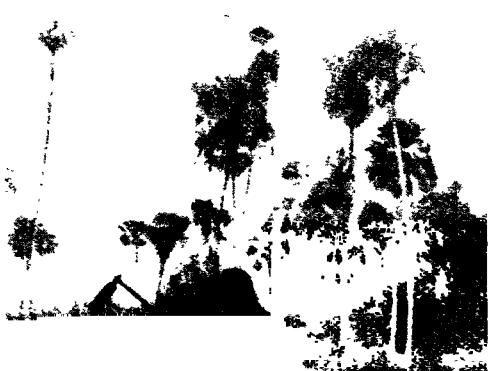




1. LENQUA BOYS WITH PELLET BOWS.

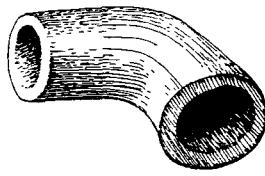


2. LENQUA BOY USING BLUNT-HEADED ARROW.

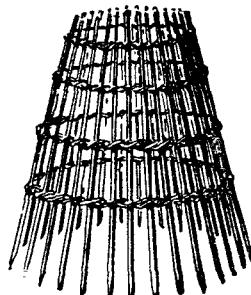
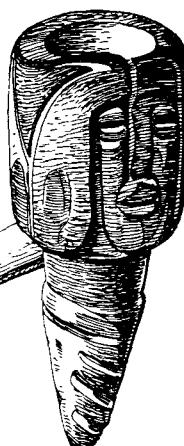


3. LENQUA INDIAN HOEING MANDIOCA.





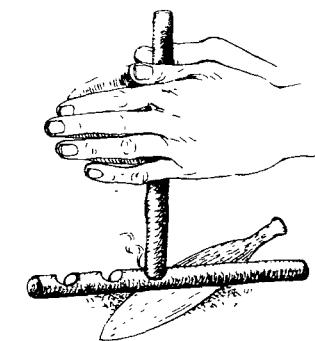
1. Clay Tobacco Pipe of primitive form ( $\frac{1}{2}$ ).



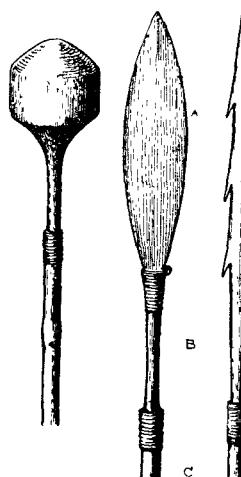
3. Fishing basket ( $\frac{1}{10}$ ).



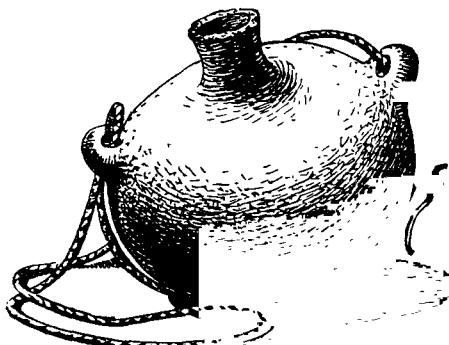
4. Doll of rags and bone ( $\frac{1}{2}$ ).



5. Lengua method of making fire ( $\frac{1}{10}$ ).



6. Blunt- 7. Iron- 8. Wooden  
headed tipped arrow  
arrow ( $\frac{1}{5}$ ). arrow ( $\frac{1}{5}$ ). arrow ( $\frac{1}{5}$ ).



9. Clay Water Jar : no ornament ( $\frac{1}{10}$ ).

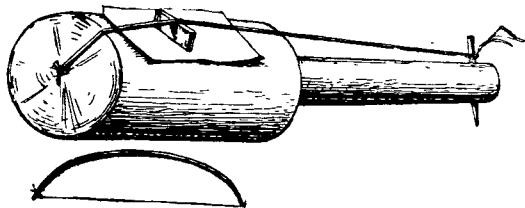


10. Clay vessel (Tóothli), painted ( $\frac{1}{10}$ ).

MISCELLANEOUS OBJECTS OF LENGUA MANUFACTURE.

*Redrawn by C. Praetorius from water-colour drawings by Miss A. E. Donkin. The originals were collected by the author, and are in the British Museum.*

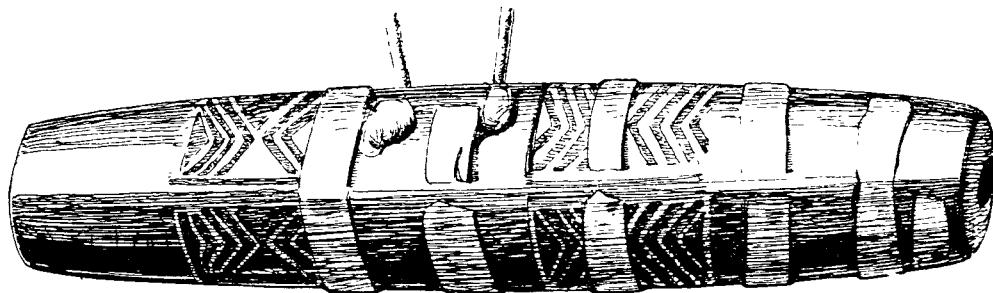




1. One-stringed fiddle : the body is hollow.



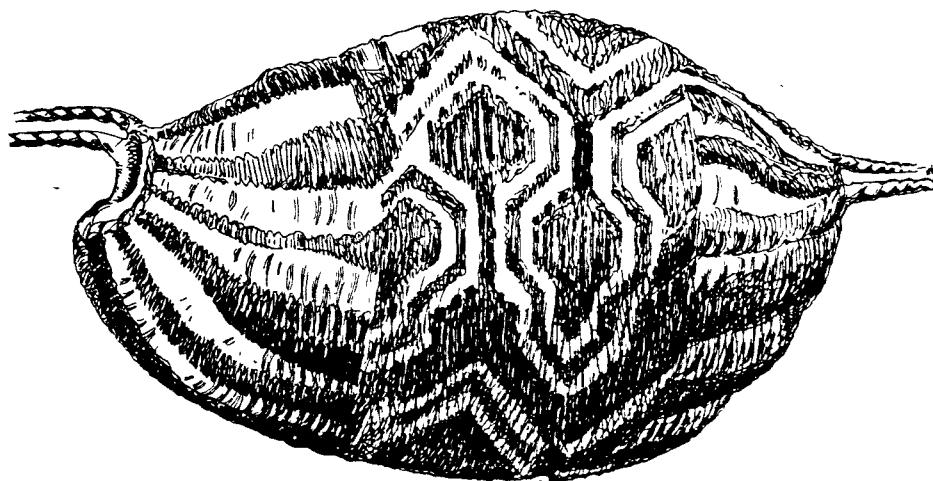
2. Wooden whistle.



3. Wooden whistle (another form) ornamented with strips of polished tin. (Tóóthli.)



4. Wind instrument of cow-horn, with reed mouthpiece.



5. String bag.

MISCELLANEOUS OBJECTS OF LENGUA MANUFACTURE.

*Redrawn by C. Praetorius from water-colour drawings by Miss A. E. Donkin. The originals were collected by the author, and are in the British Museum.*



It is with the district lying on the  $23\frac{1}{2}$  parallel of S. latitude, between the Pilcomayo and the Paraguay River, that we have to deal. In studying native life it is often found that the country makes the man, so that it will not be amiss to glance at a few of the principal features regarding the climate and the natural products of the Chaco. The Chaco being flat, as I have stated, there is very little chance for a heavy rainfall to drain quickly away. The rivers are extremely tortuous and sluggish, though, for their volume, some of them are much longer than would have been expected. The consequence is that with a prolonged drought water is extremely scarce, while on the other hand, after a heavy rainfall, which is as common as the drought, the water lies ankle deep on the open plains. During a period of five years (1895–1900) careful notes have been kept of the temperature and rainfall, the average temperature being  $75^{\circ}$  Fahr. night and day —maximum,  $110^{\circ}$ ; minimum,  $27^{\circ}$ . The rainfall is extremely variable, the one noticeable point being that August is almost always a dry month; the rain in fact seems rather to go by cycles than by seasons, a period of three years of excessive wet having been followed by four years of moderate drought. More rain usually falls in summer than in winter.

The Indians of that part of the Chaco which is to be described are composed of three different tribes, the *Lengua*, the *Tóóthli*, and the *Suhin*. The name *Lengua* comes from the Spanish and means "a tongue," the other two are native names given by the *Lenguas* to neighbouring tribes. These *Lenguas* lie on the western bank of the Paraguay River, from latitude  $22\frac{1}{2}^{\circ}$  S. to latitude  $24^{\circ}$  S., and extend inland a distance of 150 miles. Beyond them to the west lie the *Suhin*, whose limits have yet to be determined and between these two in the south-west are the *Tóóthli*, a small tribe who present slightly different characteristics to those of their neighbours. The *Lenguas* are essentially a nomadic and a peaceful tribe; the *Suhin* are more agricultural, and in consequence less nomadic; while the *Tóóthli*, being somewhat pushed in the struggle for existence by a neighbouring tribe in the south, are more warlike than either, though they still depend upon agriculture and the chase for their food supply. It was amongst the *Lenguas* that I have lately spent a period of four years, and have had ample opportunity for studying their manners and customs. I have, however, unfortunately, made no definite observations of an anthropographical character; regarding the Indians, as I did, rather as friends and companions than with a scientific interest.

*Physical Type* (cf. *Anthropological Notes and Queries*, Part I).—The *Lenguas* do not belong to the *Guarani* family, who inhabit such an extensive tract of country in South America, nor to the *Quichua* family of Bolivia. From their language, customs, and disposition, they evidently are of the same stock as the *Toba*, *Mataco*, and kindred tribes who occupy the greater part of the Argentine territory still unsettled, and extend northward into the low-lying lands of Bolivia.

As a general rule they are of middle height, well built, with a smooth, healthy, reddish-copper brown skin (between tints 4 and 5, *N.Q.*, Pl. III) and

straight black hair, which is usually cut across the shoulders. Their teeth, of course, are remarkably sound, their hair plentiful, and not turning white till a great age, their eyes strong, their hearing reasonably acute, and their perceptions remarkably so. The facial type presents occasional similarity to the North American or even to the Mongolian type (Plate XXXV, 1).

To a newcomer all Indians appear very much alike, but on closer acquaintance a certain variety of feature will be observed, and even sections of the same tribe may be found to present some differences. Also, though a strange Indian may at first sight seem to have an ugly and forbidding face, yet on nearer acquaintance, and after a certain degree of friendship has been established, his features will often appear to be characterized by pleasantness and openness.

*Clothing (N.Q. (Part II), Sec. i).*—The natives are well clothed. The men wear blankets woven from wool by the women, and dyed by them (N.Q. vii, below); a variation of this is the loose sleeveless shirt, likewise made of wool. The women wear skins carefully prepared, cut and sewn by themselves into petticoats, and they are more careful than the men in the matter of keeping themselves covered.

The men never wear skin petticoats or kilts, with the exception of a skin belt cut into strips and hanging about a foot deep. The women also use, in the cold weather, a cloak made of deer or goat skins with the hair on. Usually the natives do not wear any head covering, though, as they feel the heat in summer, they are glad to get hold of imported hats, but on special occasions the men wear a net over the head, made of red wool, and trimmed with beads, and they often wear feather head-dresses. A common head ornament is a feather of the "rhea" (*Rhea Americana*) or "South American ostrich," stuck into the scalp lock, which is formed by drawing over the forehead the hair of the centre of the top of the head, and binding it tightly round with red wool till it looks like a shaving brush (Fig. 2). They usually have their feet bare, but on long journeys they often provide themselves with sandals of hide.



Fig. 2. Lengua Indian, showing headdress, scalplock, and whistle suspended round the neck: *from a water-colour drawing by Miss A. E. Donkin.*

*Personal Ornaments (N.Q. ii).*—At their feasts they usually dress in the height of their fashion, and put on all the ornaments they possess. Both men and women wear strings of beads; the men wear red feather head-dresses, which are occasion-

ally borrowed by the younger women. Armlets of lambs' wool are often worn by men, and anklets of twisted rhea feathers (Plate XXXIX), which, besides being ornamental, are supposed to be a safeguard against snakes, for the snake bites at the moving frill and does not touch the foot. Bracelets of woven wool are

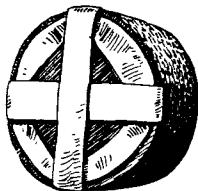


FIG. 3. LENGLA EAR-DISC.

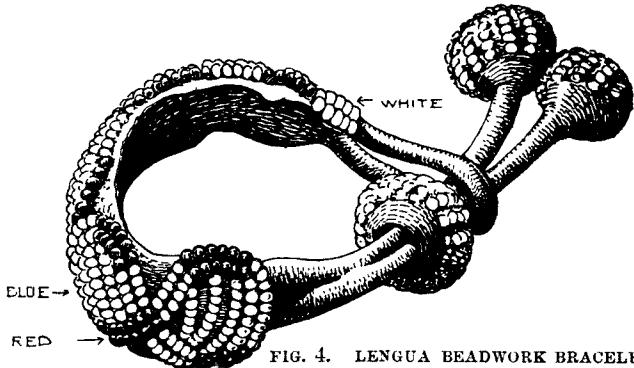


FIG. 4. LENGLA BEADWORK BRACELET.

worn as in Pl. XXXV, and are ornamented with beads (Fig. 4), and hanging beadwork is at times attached to the scalp lock, or hung round the neck. The lobes of the ear are perforated, and distended by thick discs of wood or other material, which in rare cases are as much as 3 inches in diameter. (Fig. 3.)

Woollen girdles are always in use to secure the blanket or petticoat; leather belts cut into hanging strips are also prized by the men, and a common way of fastening the blanket is with the little "aiin," or string bag, which all the men carry. This bag (Plate XLI, 5) contains all the little necessities of life, such as matches, fire-sticks (Plate XL, 5), tobacco, ear-discs (Fig. 3), bone implements, claws of animals, and so on, and finishes in two long strings, which are tied round the waist, outside the blanket.

*Painting* (N.Q. iii).—On grand occasions red paint is used lavishly. It is made from the pounded seeds of a shrub, and is much valued; sometimes the entire face is covered with the red paint; sometimes the paint is put on in broad angular lines. A dark blue-black paint is also used, but it is much more carefully applied, in narrow lines and patterns, while the same paint carelessly applied in broad lines indicates mourning. On one occasion, however, at a Suhin feast, two or three of the principal chiefs had their faces entirely black with charcoal for days together, and this was not intended to indicate mourning. Except in mourning, painting as a rule seems to be for the purpose of increasing the charms of the individual (cf. Plate XXXV). Black paint marks are often noticed on the chest and arms; these are not permanent, and are made roughly with the fingers. A black chequered paint pattern has been noticed on a woman's cheeks.

*Tattooing* (N.Q. iii) is known among the Tóóthli, and the Suhin; and rarely among the Lenguas; it is confined to the face, and is more noticeable with the women than the men. The actual process has not been observed.

*Habitations* (N.Q. iv).—The Tóóthli and the Suhin, on account of their more agricultural habits, are better house-builders than the Lenguas, and their villages

are composed of a cluster of separate houses. The general principle, however, of all the buildings, is to use branches of trees, stuck in the ground, bent over, and meeting at the top without any ridge-pole, and with grass thatch thrown on. Near the river the natives have built better houses for themselves, on the ridge-pole-and-rafter principle. They are usually built in a slight curve, the two ends facing north by way of protection from the cold south wind and storms. The natives cannot draw straight lines, nor can they put posts in straight.

Among the Lenguas the house (Pl. XXXVI) is open through its entire length, and usually at the sides as well; and seeing that the rain often comes through the roof, it will be easily understood that these natives are not well housed, but they endure their discomfort with the utmost philosophy, and contentedly accept whatever weather prevails. For their needs their houses are sufficient, dependent as they are upon an inferior supply of water and food, which necessitates a constant change of abode. Moreover, when one member of a family dies, the house is demolished and another one is built, often at a distance of some miles, by the survivors. One of these houses will accommodate from forty to sixty souls. No special arrangement is made for comfort, or superiority of position in the houses. Skins are always used to sit upon, with the hairy side invariably underneath, so as not to attract insects. Under the low roof of interlaced twigs are hung rhea-skin bags, or nets containing the women's wool, twine, etc., earthen pots, and other household necessities. Into the thatch are stuck the man's bows and arrows; and on the floor are the water jars (Plate XL, 9) and cooking pots, both of clay and iron (the latter, of course, imported), and rolled-up skins, rhea-feathers, and half-gourds which are used as cups and balers. Goats and sheep disport themselves around and through the houses; and lean, hungry dogs are in evidence everywhere, eagerly snatching at every bit of food which the natives are unable to eat.

*Wearing* (N.Q. vii).—This is done by all the women, and though their tools are rude, they can turn out a remarkably well-made blanket, with stripes and patterns. Of these blankets when new, the men are very proud, especially if dyed with the dark red dye (*see* below N.Q. xii), and it is hard to induce them to sell one of these except in exchange for a horse. The patterns are often of a diamond or triangular shape; and sometimes the triangle is worked in with small spots. The usual class of pattern may be seen in the woven belts which are about 5 feet long by 3 inches wide. In their patterns they are conservative, and not inventive enough to produce new ones. So much is this apparent that it is not unlikely that their knowledge of weaving was derived from the time of the Incas, who spread a certain degree of civilization over a large area.

The loom is formed by two upright forked posts with a pole across the top, and another tied at the bottom. As the woman sits on the ground she can just reach up to drop the ball of wool over the top pole and catch it and pass it underneath the lower one, till the warp is finished. Then by an ingenious contrivance of cotton string, crossing the whole width, and picking up each alternate strand of wool, she is able to separate them, and to pass the hank of wool,

which takes the place of the shuttle, between the warp threads. The woof thread is then pressed down into place by a kind of long wooden stiletto, smartly drawn along between the warp threads two or three times; this is done in sections of about 12 inches at a time. When finished a good blanket is usually about 7 ft. x 6 ft.

In a neighbouring tribe I have seen a woman sitting on the warp threads to keep them tight, the blanket being about 4 inches from the ground, and stretched horizontally; with a stick of wood in use to help to separate the warp threads, and a shuttle for the wool. This was probably a Mataco woman, and the improved method may have been derived from the Argentine Chaco.

*Basket-work* (*N.Q.* viii). See below (*N.Q.* xxv and Plate XL, 3) for a description of the rude baskets used in catching fish.

*String* (*N.Q.* ix) is extensively made and used both by men and women. The fibre is procured from the "caraguata" (a species of wild pineapple) by scraping a leaf of the plant against a stick placed upright in the ground or through a fixed loop of string, with the two ends of the leaf held at an acute angle. It is worked up into string, from the size of thread to that of a half-inch rope, and is chiefly used in the manufacture of nets and string bags (Plate XLI, 5). A hank of string ready for use is often used as a belt.

With string puzzles, after the fashion of "cat's cradles," they are very clever, and can make representations, with more or less faithfulness, of most common objects, a gourd, a rhea or a star, a pumpkin, a bird, some being very complicated and requiring four hands.

*Leather* (*N.Q.* x) is not tanned, but is worked soft by creasing or folding the scraped skin in diagonal lines like the "crushed" leather of Western Asia, and accentuating the crease by passing the smooth lip of a large snail shell firmly along it. The skin is then rubbed on the lap with a simultaneous wringing motion. The sewing of the women's petticoats is often very fine.

*Pottery* (*N.Q.* xi) is not used extensively, and more attention is paid to usefulness than to ornament. Water pots (Pl. XL, 9), and cooking pots deep and rather conical in shape, for standing upright among the ashes, are made by first rolling the clay between the hands in rolls about 9 inches long, and adding on piece by piece in the requisite shape (Pl. XXXVII). When half dry the pots are scraped, and polished with the smooth rim of a shell, and then left in the sun for a day or two till quite dry, when they are baked in open fires made by piling wood around and over the pot. This method of firing is, of course, not good, and the clay is not baked evenly through. The earliest form of tobacco-pipe here was probably a rough bent cylinder of clay (Plate XL, 1). These, however, are but seldom seen now, for since the introduction of iron and steel knives, it is found more economical to make wooden pipes which will not break (Plate XL, 2). For painted pottery see *N.Q.* xxiv, below.

*Dyeing* (*N.Q.* xii).—The bark of various trees is used for dye, but a small bulbous root with a fast dark-red dye is very much prized, and the cochineal insect is also used,

The substances chiefly dyed are sheep's wool and cotton, which latter, like the former, is sometimes woven into blankets; the wool is dyed, after being twisted, by steeping. String also is frequently dyed with bark to be made up into net bags.

*Fire* (*N.Q.* xvi) is still obtained by friction; though flint and steel, and even matches, are now becoming common. The method of friction which is employed is represented in Plate XL, 5. The upright stick is twirled between the palms of the hands. To produce the desired effect firm pressure downwards is required, and quick recovery when the hands reach the bottom. Smoke comes quickly, but the spark takes a comparatively long time. When it does come, it ignites on the little heap of brown dust which is produced by the friction of the two woods, and is caught on the arrow head laid athwart beneath the horizontal fire-stick. The Lengua name of the wood for fire-sticks is *hapin*. The tree itself is shown in the background of Plate XXXV, lower, left.

*Conservatism* (*N.Q.* xx).—I have mentioned that these Indians are conservative; this is shown by their reluctance to adopt any new custom. When they are shown a new and better way of working, a common reply is, "It isn't better, our way is the best," or else, "That way may be good enough for you, you are accustomed to it, but our way suits us best." For instance, after we had endeavoured to teach them to shear their sheep with shears, the women still preferred to cut the wool off with a knife as required, which apparently has always been their custom.

*Writing* (*N.Q.* xxii).—Though there is no knowledge of writing among the Indians yet they can keep a diary, for as much as three weeks or a month, by means of a stick, about the size of a pencil, closely notched all round. Producing this from his bag, an Indian can retail the events of the past few weeks with accuracy. When on the march they are accustomed to make certain signs which their friends following may understand. Where two paths branch off, a wisp of grass laid across the one means that the party in front has gone on by the other. At an abandoned village a sign may sometimes be seen: a piece of stick or bamboo is planted in the ground and inclined in the direction which the natives have taken. In this case distance is also indicated by a slight hollow scooped out behind the stick, either long or short, and the purpose of their departure is shown by a wisp of rhea-feather, or a small gourd on the top, to show that they have gone hunting or to a feast. In cases such as these an Indian shows remarkably acute perception in reading what his friends wish to say. In hailing a friend from a distance, also, though the sounds to an onlooker may be but a confused noise, yet the Indian will understand.

They appear to have no knowledge of the *quipu* system of keeping a record of historical events by knotted cords.

*Drawing, etc.* (*N.Q.* xxiii).—See above (*N.Q.* ix) for the representation of living objects by means of string puzzles of the type of our "cat's cradles."

*Ornament* (*N.Q.* xxiv).—All their ingenuity in the decorative arts is brought to bear on their pipes, and it is rare to find two pipes identically the same (cf. Plate XL, 2). A pipe with two bowls is occasionally seen but not much used.

Freaks in the wood are often used to make an original looking pipe. For textile ornament see above in section on *Weaving* (*N.Q.* vii). The decorated Tóóthli pottery shown in Pl. XL, 10, is painted with bits of resinous "paolo santo," and ornamented with flat pieces of shell stuck on with wax.

*Food* (*N.Q.* xxv).—With regard to food they are dependent to a great extent upon what they can find in the open country. Deer of several varieties are abundant as also is the *rhea*. Different species of armadillo are also common, and fish, crocodiles, and otters are met with in the streams, along with *nutria* and *carpincho*. Fish are obtained generally by following the water in the swamps, where they often lie so thick in the stagnant pools that they can easily be caught by hand. Indians also make a little conical wicker basket about 2 feet high (Plate XL, 3), open at base and apex, which when placed over the fish easily enables the fisherman to catch it by putting his hand through the hole at the top. In the swamps and shallow streams "Lolách" or "mud-fish" (*Lepidosiren*) are commonly found. In the deeper streams, bow and arrow is often used, and the Tóóthli Indians, after making weirs in the stream above and below some deep hole, catch the fish by diving after them with a narrow net fixed between two long sticks, stringing the fish on to a cord round the waist when caught. Spears of pointed wire are used for eels and mud-fish.

The leguminous *algaroba* or "caroub" (*Prosopis dulcis*) and similar tree-beans are common; their fruit is pounded in wooden mortars, mixed with water, and handed round in gourds; a handful is taken out, sucked, and put back again; this is continued till all the hard seeds have been divested of their sweet covering, and the refuse is then thrown away. It is not at all a pleasant operation to watch, but it is said that this method of mastication helps the digestion.

Meat is eaten either roasted or boiled, and well cooked.

Milk the native will not touch, nor mushrooms, considering them unfit for food. For other superstitions with regard to food see (*N.Q.* xxxvii) below.

*Salt* is sometimes made from a fleshy plant growing in salt, marshy spots. It is burnt, and the grey ashes pressed into a lump like a stone. A specimen may be seen in the British Museum.

*Tobacco* (cf. *N.Q.* Part I, Sec. 10) is grown in small quantities in the gardens, which are generally unfenced, and a mile or two away from the village, in order that the flocks of goats and sheep may not trample and destroy them. It is in general use both with men and women, though occasionally an Indian is met with who does not smoke; it is not prepared by being hung up to dry in the usual way, but is picked, pounded in a mortar, spread out to partly dry, and then pressed between the hands into small cakes, which are threaded on a string and hung up in the house. It never turns brown, but remains a dark brownish green, and has a different and softer flavour when compared with properly cured tobacco.

In keeping with his socialistic ideas (see below *N.Q.* xxxii) an Indian never smokes his pipe out, but passes it from one to another. It is quite usual for one man to produce a pipe, another to fill it, and a third to light it, and pass it on.

The pipes were formerly of clay (*N.Q.* xi above), but are now more commonly of wood. They are usually decorated elaborately (*N.Q.* xxiv above and Plate XL, 1, 2).

*Cannibalism* (*N.Q.* xxvi) is not practised. For traditions on the subject, see below (*N.Q.* xxvii, *ad fin.*).

*Religious Beliefs* (*N.Q.* xxvii).—It has been said that no aboriginal race is absolutely devoid of a knowledge or idea of some supernatural being or higher power; but after ten years' residence among the Chaco Indians, and an intimate acquaintance with their language and customs, one is forced to the conclusion that they have no conception of a God. There is, however, a marked fear of what are called *Kilyikhamá* or spirits. These are supposed to be most generally seen at night, and are practically the same as the ghosts of civilized countries. No doubt the Indians sometimes persuade themselves into the belief that they see the shades of dead people, and it is certain that they are strongly influenced by suggestion; but more often, since ghosts are seen at night, they are probably deluded by a chance effect of moonlight, or by a startled animal such as the rhea, which would vanish almost as soon as seen. When a person dies, his spirit is supposed to haunt his old home, and for this reason his relations and friends invariably pull down the house and in a few hours build a fresh one at a respectful distance.

The dances described below, under the heading of "Games" (*N.Q.* lxvii), do not seem to have any religious significance.

*Mythology* (*N.Q.* xxviii).—There is a tradition of the creation that from a hole in the ground caused by a beetle, a witch doctor commanded that a man and a woman should come forth, and they did so. In this tradition it is difficult to explain the presence of the witch doctor himself; but the story may be incorrectly stated.

I have heard that when the sun sets it is supposed to pass inside the earth, where there is another country somewhat similar to this one, of which the sky or roof is the ground that we tread on, and where the spirits of dead people live. The entrance to this place was described to me as being far in the west, a dark hole leading downwards, the approach to which was very stony and painful to the feet. It is possible that, if this story is true, it may embody some dim recollection of the shafts or galleries of the silver mines at Potosí or elsewhere, which would naturally make a deep impression on an Indian's mind, but they are so reticent with regard to their inner life and thoughts, that it is very seldom they can be persuaded to speak on these matters, and when they do, one has to discriminate between the palpably foolish stories and those in which there may be some truth.

To give another instance of what I mean, there is a story that beyond the Northern Lenguas there is a tribe of Indians who have only three toes and go by the name of "Like-rhea's-feet," and who can run with more than human speed. This I believe to be simply, as one might call it, a "fairy tale." At about the same time I heard a story, that away in the north-west a section of the Lenguas in that part were in the habit of digging, on rising ground, wells so deep that they used a bucket and a rope. This, at the time, I put down to be very possibly a

fabrication, for our Indians almost always dig broad and shallow wells, but afterwards, in travelling to the north-west, I found it to be true in every particular. The wells were on rising ground in a sandy soil, about 15 or 20 feet deep, with a hole at the top only 2 feet by 2 feet 6 inches in diameter, and so made that a man could go down by foot holes on either side (as I myself went down to see how it was made), and a bucket and rope were used.

They also have a story that the Indians who live on the old river beds running east and west, and dry for the greater part of the year, when they get hungry for fish, as they say, are accustomed to send a specially good blanket by a messenger to the far west with the request that the water should be sent down to them. Upon this the people there make a fence or dam in the big river with the trunks of trees and so turn the water into the required channel, and in due time the hungry Indians see their fish. It would be interesting to try and probe the truth of this story. Certainly, on the foothills of the Andes, the practice of damming is well known, and was extensively resorted to even before the Spanish Conquest; so that it would not be altogether surprising if it were used on a larger scale in the way described.

The Pilcomayo River, also, which bounds the Paraguayan Chaco on the west and south, has been an object of tantalizing interest to geographers for many years, on account of the apparent impossibility of following its course, for it is blocked by a water-weed where it spreads out into the Patiño swamp (after the manner of the sudd on the Nile), and also, because there is a greater volume of water in its upper reaches than is found at its mouth where it flows into the Paraguay River. This strange phenomenon has been accounted for in various ways, as being due to evaporation in the great Patiño swamp, or to the water being lost in the great sandy desert of the Chaco, both of which explanations are inadequate. The real reason is, as I believe, that the Pilcomayo (Fig. 1) has a delta which comprises a large proportion of the streams flowing into the Paraguay between latitude 22° S. and latitude 24½° S. Therefore, the flood waters of the Pilcomayo, sent down by the melting snows of the Andes, find their slow and tortuous way through many channels to the Paraguay River. Every year, therefore, the Indians on these old river beds look forward to the flowering time of the grass, because then they expect the water to come down from the unknown west, bringing with it the big fat fish which are only found in the deep, freshwater rivers.

One other interesting story these Indians have, namely, that there is a pigmy tribe living in the forests in the west, shy, and easily frightened, but good little people, and hard workers. They are described as about the size of boys of nine or ten years old, but full grown. I believe this story has been met with in the Argentine territory, and, if so, it is likely that there is some truth in it, for our Indians do not easily communicate with the Argentine people.

There are traditions or rumours, but possibly with slight foundation, of a cannibal race in the west, and the practice of scalping, though not in vogue, is still not unknown to tradition.

*Superstitions* (*N.Q.* xxix).—There is deep-rooted superstition with regard to beetles, over which insects the witch-doctors are supposed to have a peculiar power (cf. *N.Q.* xxviii above, and xxx below).

The night before an Indian goes out hunting he may be sometimes heard chanting alone, with his rattle for an accompaniment, for several hours. This is called *yabinyoa*. After a time of rain and wet, when the sun comes through the clouds for a moment, I have seen an old native pick up a fire brand and point it at the sun with an exclamation; by way of encouragement to the sun, as it was explained.

When weary of a wet day and when it has cleared up slightly, should they see another rain cloud coming up, one Indian will say to another, “Iwatakáp,” blow! or puff! and the other will say “Schwa,” and motion with the hand as if to push back the rain cloud.

Great faith is placed in dreams. It would seem that the spirit really is believed to be absent from the body, and engaged in acting what is being dreamt. But with regard to all the class of beliefs or superstitions which may fall under the head of mythology, it is almost impossible to determine accurately what is in the native's mind, for they are very reticent in these matters, and their reticence has been heightened by the knowledge that the superstition is regarded with disfavour by the missionaries. Moreover, a noticeable point is that a native after telling about his customs will not bear being questioned or cross-examined. If he tell his story one day, and be asked about it the next, he either will have forgotten it, or else will so skilfully steer clear of the subject that no satisfaction can be got, and one is left to wonder if there was any truth in it in the first instance.

*Magic and Witchcraft* (*N.Q.* xxx).—Witch-doctors are numerous and powerful. Most Indians believe that they make the potatoes, pumpkins, and other plants to grow in the gardens; yet although while they live these witch-doctors are endowed with supernatural powers, they are believed to die as ordinary men, and are not credited with any exceptional powers after death. There is probably a ceremony of initiation but the secret is jealously guarded. The witch-doctor is supposed to have the power of introducing beetles into a man's stomach for the purpose of killing him, therefore when a man feels his stomach ache, he often imagines that beetles are inside him, and he appeals to the witch-doctor of his particular family to cast them out. The curing is generally done at night. The man is laid on the ground, the witch-doctor sits by his side, and a ring of men sit round. The doctor then begins to spit on and to suck the man's stomach over the painful part, to the accompaniment of an excited though monotonous chant from his assistants. Rattles are also used. After some time the doctor produces, as he is sucking, a beetle, or a palm nut, or a fish bone. If the patient is semi-conscious it is supposed that his spirit has escaped and is wandering round waiting to be recalled. This is done in the manner before described, and the symptoms of returning consciousness are hailed with cheerful relief. A spirit may also be driven out of a patient in the same way. The ear-discs of witch-doctors are generally faced

with bright pieces of glass or bits of polished tin, and these are said to have something to do with the "shadows" or *pis-chische*. As the doctor leans over his patient the glittering glass may catch and reflect some faint light, enough to give him the clue to his statement that the spirit has gone this way or that. Some of the witch-doctors probably really believe in their power to cure, though the more intelligent among them must know that they practise conjuring tricks, and work on the feelings of the people. It must be remembered also that faith helps largely in a cure.

*Customs* (*N.Q.* xxxv).—Etiquette is strictly observed in the reception of visitors. A string of visitors advancing in Indian file is seen from a distance, winding towards the village along the narrow Indian path. Discussion immediately arises as to who they are, and where they come from; and as they get nearer, they may be identified as friends or comparative strangers; if the former, their particular friends in the village prepare to welcome them; in any case should there be any food in the village, such as potatoes or pumpkins, or mandioca, fires are stirred up and pots put on. As the strangers come near, the dogs rush out and bark, the women chide them or beat them off with sticks; and the visitors halt a few yards from the house. A chief man goes forward and says a few words of welcome or enquiry, such as "Do you wish to rest?" the leading women of the village then approach, and each woman relieves two or three of the men of their bows and arrows, returning with them to their respective parts of the long open house; the visitors follow their bows and arrows, and are soon seated on freshly dusted skins under the shade of the roof, while a pipe is filled, lighted, and handed round; and the newcomers proceed to answer questions as to whence they come, where they slept the previous night, how many days they have been travelling, and what they have had to eat on the journey. A stranger is not expected to be too effusive, it is quite the correct thing for him to sit almost silent for hours at a time. The men are often accompanied by their wives and children on these visits.

A noticeable and curious habit is the repetition of speech by the listener, especially in leave-taking, which is invariably formal and polite. An Indian ready to leave, with his blanket carefully girded up, and his bundle of arrows stuck through the belt at his side, will come and stand in front of where the chief is sitting by his house, and lean carelessly on his bow, while a conversation such as the following may take place, not in a hurried manner, but slowly and deliberately:—

- A. I am going to leave.
- B. You are going to leave.
- A. I am going home by the straight road.
- B. You are going home by the straight road.
- A. I shall sleep at so and so.
- B. You will sleep at so and so.
- A. We shall see fish there in the streams.
- B. You will see fish there in the streams, the *savalo*, fine and fat, my word!

- A. Fine and fat, my word !
- B. You will see pumpkins at the village beyond.
- A. We shall see, etc., etc.
- B. You will arrive home by the full of the moon.
- A. I shall arrive, etc. Perhaps we shall kill a deer on the sandy patch.
- B. Perhaps you will kill a deer on the sandy patch.
- A. (*With a sudden air of "well, I must be going")* I am going away.
- B. Go !

*Government (N.Q. xxxvi).*—We may here glance at the principles of *socialism* which are so deeply instilled in the minds of these Indians. Unlike many other native tribes who have their chiefs and head men, the Lengua natives rule their lives almost exclusively by public opinion. So-called chiefs there are, certainly, but a better name for them would be “Father of the Family.” As far as I know there are no rites or ceremonies in this connexion, the most influential man naturally taking his place as spokesman or head of the little gathering. The chief is also expected to provide for his followers, and in this respect he is more like the father of a family than a chief, in the recognized sense of the word. A young chief once said to the Superintendent of the South American Mission, “Why do you not give me presents ? My followers expect me to give them things, and I do so; you are my chief, but I find you do not give me any presents.” The more intelligence a chief has, the better he is able to provide for his followers and to work for their welfare. Should an important question be discussed a chief would hardly venture to lay down the law or any particular point where his views were likely to be at variance with those of his followers, though he might wish to do so ; he would find out, by listening to conversation, the wishes of the majority, and then carry the matter through as if it was entirely his own idea. A heated discussion is almost unknown ; in really serious matters they are very quiet. Only twice in four years have I seen what in England would be called “a row,” and in each case a woman was the subject of dispute. The natives are very much attached to each other and to their own country ; in telling the story of “the Prodigal Son” to a Christian native, so that he might tell his friends, I found, in spite of repeated explanations, that it was impossible to make him understand that the elder brother could have been aggrieved by the return of the Prodigal ; such an idea would hardly find room in a native’s mind ; it would be considered such “bad form” by public opinion, that he would not be able to bear the disapprobation of his fellows. This feeling is so ingrained in them, that it is difficult to get an Indian to compete against others for a prize which is to be received by only one. Those who lose feel hurt because they lose, and he who wins feels grieved because the others are hurt. Anger there may be, but it is usually cloaked over with smooth words ; backbiting and slander come afterwards, as for instance with the Northern Lenguas or Sanapanas who occasionally visit the station to trade. They are courteously treated while they stay, but after they have gone it is common for an Indian of the district to come in with the tale that

"the Sanapanas have been stealing the mandioca or pumpkins out of your garden as they passed by."

These Indians are a reasoning and reasonable people, if they are treated as such. Though one may be angry with them, experience teaches that it is wise to keep one's temper, and a quiet reply with a dash of sarcasm in it has more effect than a blustering command; in the latter case the native would properly make no open reply, but subsequently would remark to his friends, perhaps with a smile, "he is cross, he is angry," and he would probably be advised to visit the next village for a day or two. Should a native be dismissed for incapacity it is always well to give him a comforting reason for it; to suggest that his garden at home needs weeding, or that his father and mother are longing to see him again.

*Music (N.Q. xli).*—Chaco Indians are decidedly unmusical as we understand music, being quite unable to follow the simplest tunes. They have, however, droning chants of their own,<sup>1</sup> and a few instruments with a range of only two or three notes. One is a round flat whistle (Plate XLI, 2, 3), which is worn around the neck (Fig. 1); it has a hole at the top which is held to the lips, while the thumb and fore-finger make the notes from two side holes. A kind of flute is also used, made of bamboo or bone; as well as a small rough kind of violin, made from a single block of wood, with one string of horse-hairs and a bow (Plate XLI, 1).

The wind instrument of cow's horn, figured in Plate XLI, 4, is used mostly by the Suhin, Tóóthli, and Western Lenguas, and either with or without the reed mouth-piece which is shown in the figure. Some Indians can blow the horn, which is used for signalling in the open country, without inserting a reed. Those, on the other hand, who cannot manage the horn by itself, insert the reed in order to produce the sound. To the Indian, therefore, the reed seems to be rather a makeshift than an improvement.

*Language (N.Q. xlivi).*—The Lengua language is of the polysynthetic order and is of the same general formation and character of expression as the above

<sup>1</sup> In the two examples which follow I can vouch for the words; for I have often recited them to the natives to their satisfaction. The chant has its musical intervals, but they are too vague and irregular to be reproduced in our notation.

1. *Lengua chant*, at *Maning* dance (from a Suhin source). The word *hiuerkla*, upon which much stress is laid, means "moon" in Suhin.

Hé e ní  
Hé a háni yá  
Hé a háni yá  
Hé a í ní  
Hé a háni yá  
Hé a háni *hiuerkla*  
Hé a háni hé i a  
Hé a háni hé i a  
(Repeat.)

2. *Lengua chant*, at the *Maning* dance, from a Suhin, or Tóóthli source.

Hé-ní-a-á  
Hé-ní-a-á  
Hé-ní-a-ái-i  
Ha-éé-ní-a-ál-i  
He-é-ní-a-ús-a-á  
Hé-ní-a-á  
Hé-ní-a-á  
Há-e-ní-a-ál-i  
Ha-é-ní-a-ús-a-á  
(Repeat.)

mentioned tribes, though in all of them the tongue itself is different, and it is impossible to class them as dialects one of the other. They do not readily incorporate foreign words into their language, being in this respect unlike other native races, who with a turn of the tongue will make an English word their own. To a New Zealander, for instance, a kettle immediately becomes a *ketara*, but to a Lengua it always remains *mithing chischama-yingmin*, “a thing to boil water in.” To a Maori, horse is *hoiho*, but a Lengua calls it *yatnathling* or *yat-napothling*, “like a tapir,” this animal being the nearest approach to a horse that he had known before its importation by the Spaniards.

For the numerals see below (*Arithmetic, N.Q.* lx).

*History (N.Q. xlv).*—With regard to the origin of these Indians, they themselves say that they come from the north-west, and their superstitions rather point in that direction, for the witch-doctors in the West are said to be more powerful than their own. And in the wearing of their blankets and string bags some connection may be found with those Indians who were known to be subject to the dominion of the Incas four hundred years ago, for bags almost identical in pattern and texture have been found in ancient graves in Peru; and the Indians in the West, at least the two tribes there with whom I have come in contact, are able to weave much better blankets than the Lenguas. But any statement with regard to their origin must of necessity be most indefinite, for they have no tradition of the past for more than a man’s lifetime; and leave no monuments by which to trace their history.

*Archaeology (N.Q. xlvi).*—It is said that a part of the district now inhabited by the Lenguas was at one time occupied by another race called Paiagua, or “people of the river,” and this is corroborated by the discovery of stone axes and pottery, the presence of which can only be accounted for by the natives, by the theory that the pottery belongs to spirits or ghost people, and that the stones fell from Heaven.

*Hunting (N.Q. xlviii).*—The bow and arrow are the principal weapons; and since civilization has brought hoop-iron within their reach, iron arrow-heads are common; these, with their stiff bows, which require a strong arm to use with proper effect, have great penetration. The iron arrow-head (Pl. XL, 7) is fixed into a wooden socket (*b*) which in its turn has a point to be inserted into a bamboo shaft (*c*) bound to prevent splitting. The old wooden barbed arrow-heads (Pl. XI, 8) which are still extensively made and used, need, of course, no socket. The two feathers are always fixed with a slight curve, which gives the effect of a screw, and is quite sufficient to make the arrow spin in its passage through the air. It is difficult to say if this is done purposely, or whether the idea has been handed down till it has become an invariable custom. Most arrows have barbs, but I met an Indian who was travelling in a part of the country where he thought he might chance to meet an enemy and he had provided himself with a bundle of arrows without barbs, saying they were for his enemies. If this proves to be the usual custom, as it well may be, it speaks well for their considerate dispositions. Blunt

headed arrows (Plate XXXIX, 2; XL, 6) are also used, for small birds, by the boys, who begin to handle their little bows and arrows at three or four years of age.

The boys also use a kind of sling-bow, or pellet-bow (Plate XXXIX, 1).

Traps are sometimes used for foxes, and string snares for the rhea.

In hunting the rhea, the natives almost always provide themselves with a large bundle of grass or creepers with which they envelop their head and shoulders. Without this precaution they could seldom get near enough for an accurate shot, but with it the ostrich appears not to notice the approach of the hunter. Dogs are much used in hunting.

Poison for arrows may be known, but is not in general use.

*Training of Animals* (*N.Q.* lxii).—All kinds of wild animals are tamed when caught young, but generally revert to their wild state at maturity.

*Infanticide* (*N.Q.* lvi) is quite common among the Lenguas; an interval of seven or eight years being always observable between children of the same family. Not only are babies, which are born in this interval, immediately killed, but abortion is also practised. The reasons for this are obvious from the Indian's point of view.

The woman has the hard work of carrying food from garden and field, and all the transport to do; the Lenguas are a nomadic race (p. 281), and their frequent moves often entail journeys of from ten to twenty miles a day, the woman carrying all the household furniture, pots, water jars, wool and skins in a large net bag on her back with a supporting string round the forehead. In one hand she carries a palm-digger (which is a bar of iron sharpened at one end, used for getting at the tops of young palms), sometimes a reed mat, which is used as a roof, occasionally a cat, a fowl, or some other tame animal, and seated on the top, the baby. The man walks in front, carrying nothing but his bow and arrows, for he is the food provider on the journey, and custom allows his freedom from all impedimenta, although he sometimes gives his little boy a lift. Travelling with natives under these circumstances, one is forced to the conclusion that it would be impossible for a mother to have more than one young child to carry and to care for.

The Lenguas are also extremely socialistic, and public opinion on the subject of a screaming child at night is very much the same as among civilized races; while it is customary to suckle children till five or six years of age.

Again, the child of a girl whose first marriage is not a success, and whose husband deserts her, is generally killed at birth, the mother feeling that it is the man's part of married life to provide meat for them both, and failing the food provider she does not care to be burdened with a child, who may also prevent her from procuring a second husband.

It is also possible that medicine men and the head men of a family may have some idea of regulating the population to suit the existing food supply of their particular district. These are the probable reasons for infanticide, though there may be more remote causes of which the Indians prefer to keep strangers in ignorance.

*Burials* (*N.Q.* lviii).—As death approaches, a kind of stupor seems generally

to overcome the sufferer, and as Indians are unwilling that death should actually take place after dark, the dying man's end is sometimes purposely hastened by suffocation. This seems cruel, but I believe it is done out of supposed kindness to the victim. When death is due to causes which they cannot understand, and which they therefore attribute to some foreign witch-doctor or *yihothma*, the body is mutilated at death; the stomach being cut open, and a stone being inserted, together with some charred bones. This is supposed to secure the victim's revenge, by killing the offending witch-doctor.

I have only seen one burial, that of a little girl nine or ten years' old. Dysentery was the cause of death, which took place about midday. I was away at the time, and though she was mutilated in the manner described, I did not see the process. She had been carried by her father to a shady spot under some trees about half-a-mile from the house, and when I arrived, was laid down on her right side, covered over with a new apron of red-and-white check-pattern. I uncovered the face for a moment to see if she were really dead, but made no further examination, for I did not wish to hurt the feelings of the parents, who—especially the father—had been very kind to her during her illness, and I am quite sure that anything they may have done to her was done according to their ideas of kindness. I was surprised that they should have buried her with the new cotton wrapper, for they must have valued it considerably. The ground was very hard, and the grave was dug under a tree, 18 inches or 2 feet deep, with room enough for the child to lie on her side in a slightly doubled-up position with the knees drawn up. When they had filled in some of the earth, there was evidently a proposal to kill the child's favourite dog for interment above her, but in deference to my presence it was not done. I believe it was not killed afterwards. A woman who was sitting near produced a ball of wax, and stuck a few snake's teeth in it, with the remark, "We will take care of our friends"; this was placed by the grave-side, but whether it was put in afterwards or not I am unable to say. The child's skins, petticoats, and other effects were afterwards burnt close by, and no mound or mark was made to show the position of the grave.

*Arithmetic (N.Q. lx).*—The Lenguas can count without much difficulty up to twenty, using, of course, their fingers and toes. Beyond that comes "many," and if a very large number is required, "the hairs of the head" are called into requisition. *Thlama* "one," and *anit* "two," are apparently root words; the rest appear to depend upon them, and on the hands. *Antanthlama*, for "three," appears to be made by these two words joined ( $3 = 2 + 1$ ). *Four* is "two sides alike."

*Five* :—"One hand."

*Six* :—"Arrived at the other hand one."

*Seven* :—"Arrived at the other hand two," and so on.

*Ten* :—"Finished the hands."

*Eleven* :—"Arrived at the foot one."

*Sixteen* :—"Arrived at the other foot one."

*Twenty* :—"Finished the feet."

*Games* (*N.Q.* lxvii).—Several games appear to be universal among these tribes. A characteristic game, represented in Plate XXXVIII, 1, is called “*Hăstāwa*,” and is much on the same principle as our race-games played with dice. About twenty holes are scooped out in a semi-circle on the ground, about 4 to 6 inches long and 4 inches apart. One round hole deeper than the rest is in the centre, and this represents a well or deep stream of water, in which the players may be “drowned” and so put out of the game. The dice are four pieces of wood, round on one side and flat on the other. Two are held in each hand, and brought smartly together, and then are swept off the under hand on to a smooth piece of hide. Even numbers, flat or round, score variously, and allow another throw; odd numbers give the next man his turn. The scoring is done by means of arrows stuck in the holes, and as they are not good at counting, this part of the game appears rather complicated to an observer. But to the players it appears fascinating (though only indulged in at one season of the year) for the sibilant “*hăs-*” of the players and the click of the dice as they toss them down may be heard for hours together. An element of gambling is apparent in this game, for beads, and other small articles of apparel, frequently change hands. I believe that this game is meant to represent a war party on a raiding expedition, for little bits of wood or stick, placed in several of the small holes, are said to be “gardens” or patches of mandioca, pumpkins, or potatoes, which are supposed to be destroyed by the enemy, who plays himself into one of the holes and throws out the contents. The players take sides, and the rule is to proceed from one end to the other of the row of holes and back again.

The game of hockey appears to be indigenous amongst them, but it is hard to discover any rules in the general scrabble for the ball. I have seen a goal at each end, composed of a pile of sticks heaped up, and as many as forty men playing in one game, among the Suhin.

With their turn of thought, one could hardly expect complicated rules among these Indians, for the idea of keen rivalry or competition seems to find no place in their ideas except in wrestling, at which boys and men are very adept.

A sort of battledore-and-shuttlecock is played by the children, who use their hands for the bat; the shuttlecock is a doubled-up wisp of corn-cob leaves, tightly tied round to form a knob, with the loose ends cut square, and two or three long rhea feathers inserted. These will carry a longer distance than our Badminton shuttlecock.

Tops are known and used, but whether they are indigenous or not it is hard to say. The doll shown in Pl. XL, 4, is merely a small unaltered bone dressed up in rags.

Chaco Indians are very fond of feasts, and any occasional abundance in their food supply is eagerly welcomed as an excuse for one.

Dances form a prominent part in these feasts, and of these dances there are four or five different classes—

(1) That called *Kyaiya* is the most common. It generally commences at sunset, lasting through the night, and the next day and night, and concluding at the

following dawn. The *Kyaiya*, which gives the name to the feast, is a gourd rattle. When once started the rattle is supposed not to stop till the feast is over. Mere amusement is connected with this feast, and no superstition, as far as is known. The men stand round in a ring and sway their bodies with a slight motion, as they beat time with the rattles, while the chanting chorus rises and falls. The women join in occasionally, dancing behind with their hands on the men's belts.

(2) The women also have a separate dance of their own, where they appear to protect a young girl from evil spirits, who twine in and out, in line, uttering shrill cries (Pl. XXXVII, 1; XXXVIII, 2). The boys who represent these evil spirits are dressed up in rhea-feathers, and wear a bag over their head.

(3) The *Yanmana* is a long feast at which marriages are contracted and during which all the other dances may take place.

(4) The *Wainkyá* is so called from the “*Wainkyá*,” or pot, which, converted into a drum by means of a piece of leather tightly stretched over it, is beaten like a drum throughout this particular feast.

(5) The *Maning* (= “circle”) is a series of short song-dances which may take place at either of the above. For the songs at the *maning* dance, see above p. 293 n.

*Contact with Civilized Races (N.Q. lxxiv).*—It is too soon yet to comment definitely on the effect of civilization on the Lengua Indians. In many ways they are undoubtedly open to good influences. Morality, for instance, which is generally so low in native races, is with them so high that they compare favourably with all but the higher class of the civilized Spanish-speaking population, their neighbours over the river. Of course there is room for improvement, but in teaching, for instance, that a man should only have one wife, we are emphasizing their own unwritten law or custom. At the station of the South American Missionary Society, a marked improvement is observed in the manners and behaviour of the Indians who are resident there. They become open and frank, clean and smart in their dress, quick to learn and dependable.

It is not to be expected that their nomadic habits would be cast off in a day: a generation would be short in which to effect such a change, and it is found wise when they get restless, or dull, after a month or so of continued settled occupation, to change their work, or to let them visit their friends for a time. They are not encouraged at the mission stations to alter their style of dress, though they themselves are delighted to throw off their heavy woollen blankets, and to don European shirts and trousers. Yet these do not become them so well, and are less healthy. Indeed, the wearing of the left-off clothing of Paraguayans becomes a source of actual danger to them, on account of infectious diseases, from which, among themselves, they are remarkably free. Those Indians who go and live at the “Coast,” as the banks of the great Paraguay River are called, are brought in contact with that debased form of civilization which everywhere obtains on the borders of a new country, and rapidly give way before its evil influence. Drink, of course, in the form of the common cane-ruin, plays havoc amongst them.

Missionaries are sometimes blamed for penetrating into new countries, but their influence for good on the natives amongst whom they have settled in the Chaco, when these are compared with the raw material, or with those who are often met with in the town, cannot for one moment be doubted. Yet at the same time it must be confessed that by their very good works they have placed an obstacle in their own path, and in that of the future welfare of their converts. Fifteen years ago no Paraguayans would enter the Chaco, unless well armed and in large numbers. Now you may travel in all parts unarmed, and alone, if you wish it, with only native companions. In consequence of this, which is the effect of the British missions, the country is now being filled up rapidly with Paraguayan settlers, who have but a poor influence on the native life and character.

The Paraguayan Government having sold every acre of land in their part of the Chaco, there is no provision whatever for Indian reserves, and an Indian has no more social rights, until he is baptized, than a tiger or other wild beast, and this is the light in which he is generally looked upon in South America.

The British public does not appear to sympathize with the combination of Industrial with Missionary work, and seems to consider that the Gospel alone should be sufficient enlightenment to enable an Indian to find his level in the daily increasing strife of race and creed. But to an unbiassed observer it is evident that if no means can be taken to prevent the increasing influx of a debased form of civilization whose chief agent is rum, it will not be many generations before there are no more Chaco Indians to discuss.

\*.\* Plates XXXV, XXXVI, XXXVII, XXXVIII and XXXIX, 1, are from blocks kindly lent by the South American Missionary Society.

## THE NATIVE TRIBES OF MANIPUR.

BY T. C. HODSON.

[PRESENTED 10TH DECEMBER, 1901.]

MANIPUR is the foreign, the Hindustani name for the country which the people themselves call the *Meithei Lei-pak*, the broad land of the Meitheis. The Burmese call it *Kathay* or *Kassay*, while the Bengalis and Assamese call it *Moglai*—a variant on its Naga name *Mekli* or *Mekri*.

The Meitheis themselves have—since their conversion to Hinduism—put forward a claim to descent from Arjun, one of the Pandavas, who once visited the valley and, like many a foreigner since, married a woman of the country who became the ancestress of the race. In support of this claim they point to an obscure passage in the *Mahabharat*. We may safely reject this claim because their own records prove that prior to the advent of Hindu missionaries in the beginning of the eighteenth century the Meitheis were very much what the hillmen are to-day, only with a greater amount of material civilization and culture. The language is unmistakably allied, and that closely, to the Chin, Lusei, Kuki dialects. The people are in feature of the Mongoloid type and in no way resemble the Aryan or Aryansed peoples of Hindustan.<sup>1</sup> Among all the hill tribes in State is current a tradition which declares the Kuki to be descended from the eldest of three brothers. The youngest brother is the ancestor of the Manipuris and the descendants of the middle brother are the Nagas. In one or two Tangkhul villages, side by side with this tradition, I have heard a story which brings the Nagas from the valley whence they emigrated to the hills because they found the heat and the mosquitoes quite unbearable.

Among all primitive peoples the holder of the kingly office is a person of the greatest importance and interest. I hope to show that Manipur is no exception to this rule, and my notes will mainly deal with the mysterious and interesting ideas and ceremonies connected with the position of the king in Manipur. The word for king itself (*Ningthou*) seems to mean “the person who may do the thing he will, and is a very apt word to use of a being who is regarded and addressed as one but little inferior to the gods themselves.

I do not know, and I have not been able to discover, when or by whom was started the belief that the rule of succession to the throne of Manipur was that of brother succeeding to brother. The records disclose a very different state of things. If there was any rule at all, it was that of primogeniture, modified very considerably by the theory that might is right. There is, however, a good deal of interesting mystery about the succession of Garib Nawaz or Pamheiba, whose

<sup>1</sup> For physical measurements of the Meitheis (Mitais, Maithais) see Waddell, *Journ. As. Soc. Bengal*, lxix, Pt. iii, p. 114 (Calcutta, 1901).—[Ed.]

predecessor was Churai Rongba, who coquetted with Hinduism and finally reverted to his pristine creed. It is said that in a dream or from a prophecy Churai Rongba learnt that he was destined to be slain by his own son. He determined to avoid his fate if possible, and therefore whenever one of his wives presented him with a son and heir, the babe was promptly put out of the way. It fell out that the principal Rani was delivered of a son at a time when the Raja was away on an expedition. A stillborn child—a boy—the son of one of the Raja's slaves, was shown to the world as the royal babe, and the living infant was stealthily conveyed by night to a Naga village in the hills, where it was reared. In the course of time, Churai Rongba discovered that he had a living heir. He then invited all the Naga children of the age of his son, to look on at some boat races. They were treacherously massacred, but the young prince somehow managed to escape. A little later, Churai Rongba came across his son, and, struck by the lad's intelligence and courage, all unwittingly made him one of his personal attendants. Pamheiba then heard of the prophecy and of his royal origin, and succeeded in killing or some say accidentally and in ignorance killed his father when they were out hunting together. Pamheiba, too, was in his turn killed by his son Ugut Shah. The Naga village Maikel, which in this tradition is said to have afforded shelter to the prince, was given the privilege of precedence above all other Naga villages on the day when the great annual Naga sports are held, as a reward for their protection and help. This village has a monumental stone which they say marks the place whence the common ancestor of the Nagas, the Manipuris and the Kukis, emerged from the darkness below.

An educated Manipuri once told me when we were discussing this story that there was another legend that the son of Pakhongba, the snake king, the semi-divine ancestor of the royal clan, unwittingly killed his father, mistaking him for a snake. For this reason, the taint of parricide clings ever to the royal house of Manipur. Among the Tangkhul Nagas, when a son marries, his parents and the rest of the family have to move out from the old house and build themselves a house somewhere else. This rule too applies to the succession of certain hereditary village offices which are now-a-days sacerdotal rather than regal.

On the restoration of Gurusham, the representative of the lineage of Garib Nawaz, it was found necessary to associate with him in the kingly office his younger brother Jai Singh, because, so tradition says, Gurusham was a cripple and therefore not altogether fit to exercise royal functions which then as now include a good deal which in more elaborate societies are reserved for the priest.

The coronation of the Raja of Manipur is by all accounts an imposing and interesting affair. There are in Manipur seven clans, four of which own kings, titles even now of considerable dignity but historically survivals from the time when these clans still preserved their independence. The Angom Ningthou, or king of the Angoms, is generally, by some accounts he must be, a relative by marriage of the Meithei Ningthou, and custom demands that his coronation shall precede that of the Raja by a few days.

The Raja and his Rani go to their coronation clad in a costume which, but for the greater sumptuousness of the royal apparel, is that of the Kabui Nagas. The Raja is always attended by one or two Manipuris wearing Naga costume, and in the royal enclosure is a house built in Naga fashion. The state head-dress is adorned with a protuberance somewhat like the curious horn into which the Marring Nagas wind their hair. Wrestlers, too, when performing before the Raja (and only then) wear a *pagri* done up in this curious way.

To return to the coronation ceremony. With great solemnity the Raja passes between two massive stone dragons which stood (they stand no more) in front of the coronation house. Somewhere inside this building was a mysterious chamber containing a pipe which led, so men said, to the depths of a cavern below where dwells the snake god, the deified ancestor of the royal family. The prosperity and length of the Raja's reign were believed to depend upon the length of time he could manage to sit upon the pipe enduring the fiery breath of his forefather in the place below. His troubles were not over with this ordeal, for outside were gathered the soothsayers and wise men of the country, who carefully watched where and on what stones he trod as he passed out. Thus they knew the fortune of the reign.

In Manipur they have a noteworthy system of keeping count of the years. Each year is named after some man, who—for a consideration—undertakes to bear the fortune good or bad of the year. If the year be good, if there be no pestilence and a good harvest, he gets presents from all sorts of people, and I remember hearing that in 1898, when the cholera was at its worst, a deputation came to the Political Agent and asked him to punish the name giver, as it was obvious that he was responsible for the epidemic. In former times he would have got into trouble. Sometimes a special ceremony was observed by which a criminal obtained a remission of his punishment by taking upon himself the sins of the Raja. A large scaffold was erected and on the upper story the Raja and Rani bathed. Below sat the criminal and his wife receiving the royal ablutions. After the bathing operations were finished the pair below were given the old soiled raiment of the purified people above, and these carried with them the sins and the guilt of the royal consciences.

In Manipur the prosperity of all classes depends on the strength and the regularity of the rainfall, and we find, therefore, that in the valley and in the hills there are many rites and ceremonies to secure a proper rainfall. In Manipur where Hinduism prevails, despite the prolonged existence of the earlier religious system, we find rain ceremonies with Brahmins as the chief agents, and other more primitive ceremonies at which the representatives of the primitive religion preside. Indeed, I have found that whenever we find a ceremony exclusively in the hands of the *maibas* or *pibas*, the ministrants of the earlier system, we have to deal with a survival from pre-Hindu times. Where rain is wanted, 108 girls milk 108 cows in the temple of Govindji, the incarnation of Krishna most popular in Manipur. If this fails, the women throw their *dhan*-pounders into the nearest pool, and at the

dead of night take their clothes off and plough. These are ceremonies known in India, in Behar, where too, as in Manipur and among the Kabui Nagas, men perfectly nude wander about at night allowing themselves the widest extravagance in the way of abusive language that oriental imagination can run to.

Surely the rain-gods that sleep or are careless of mankind will listen to these tales of woe ; but if these artifices fail, the Raja, almost a deified person himself, and the descendant of a semi-divine hero king, must play his part and save his people. He may, like the common herd, attempt to move the obdurate powers to pity his sorrow and inglorious nakedness. He may lead a procession to Nong-maiching, the great hill that rises sheer and steep from the plains east of the capital, where he must perform a magic rain-compelling rite, transferring water from one spot to another and worshipping a quaint stone which is believed to have a mysterious connection with the rain, and according to imaginative people is shaped like an umbrella. Every year a great procession worships at this hill, but its special efficacy depends upon the presence of the Raja. Etiquette requires that a special vocabulary should be used in addressing the Raja, who is in all matters regarded as semi-divine. His children are all called *sena* or golden, an adjective of great sanctity, and even his grand-children are called the god-like.

The Meitheis are divided into seven exogamous clans, and there is a good deal of evidence to show that at least three clans have disappeared. The head of the clan enjoys a peculiar position. He performs acts of worship on behalf of the clan, and represents it in all matters that pertain to the jurisdiction of the greater gods, not Hindu deities, but the great nature gods of the older religion. The head of the family manages the relations with the lesser deities, while the head of the house looks after the interests of the house god. Before a sacrifice of any sort the *piba*, or head of the clan, must become spiritually pure. Vexatious, indeed, are the many restrictions to which he must submit. All the clans worship a tribal deity who is very obviously the eponymous ancestor. Each of these tribal deities has his special flower, fruit, fish, and animal, which (and no others of their kind) are acceptable offerings.

There is a tabu object to each clan. In one case only is it an animal. In two cases each it is a fish or a bird or a vegetable object. Should any member of the clan touch the forbidden object, he is supposed to become speedily afflicted with some mysterious disease. Special tabus can be created. A man once fell from a mango tree and was killed. The *piba* of his clan then declared that particular tree to be "sacred" to his clansmen, and none of them ever now come near it. Near Imphal, the capital, are two fine peepul trees, beneath which, according to tradition, lie the bones of the Moirang tribesmen who fell in the great decisive battle which nearly five centuries ago terminated their struggle with the Meitheis. No man of the Moirang tribe will, to this day, dare to walk between them.

All the passes over the hills to Manipur are crowned with abodes of the hill-spirits, who protect and help the weary traveller. Manipuris as well as Nagas deem it wrong to pass these spots without laying an offering of rice, or occasionally

a pice or two, upon the stone which marks the abode of the spirit. They regard as very sacred the groves of trees, which here and there are found on the top of bare knolls. Many a tale is told of the malignant spirits that dwell in the deep pools of rivers. There is a profound belief in vampires—*hing chabis*—things that, as the name shows, eat live people, and dwell in dark secluded glades. The Manipuris attach great importance to omens, dreams, and soothsaying of all sorts. Great reverence is paid to the Maibis, women who are specially devoted to the worship of Pakhongba, the snake personification of the apotheosised ancestor of the royal clan. When the snake appears in a tiny shape, all is well with the State. His head is golden in colour and is shaped like that of a bird.

Excluding the Brahmins as the priests of a foreign cult, we find that the sphere of influence of the *piba*, the head of the clan, is strictly religious and sharply separated from that of the *maiba*, who deals only with the magical side of the supernatural and is often a specialist, having become the doctor of the community. I regard it as probable that in former times some form of ancestor worship was practised in Manipur. The records say that the conversion of Garib Nawaz to Hinduism was followed by the exhumation and cremation of the bones of his ancestors. Is it possible that the Manipuris are, in a way, right when they say he did this because he revered his ancestors, and was convinced that, although they had not known Hinduism in their lives, they had yet a chance of immortality in the Hindu heaven if their pious descendant were to dispose of their remains in the Hindu fashion.

The Naga tribes in Manipur are all divided into exogamous groups which are said to derive their origin from brothers or near relatives, the eponymous ancestors of the *khel* or group. Relationship is reckoned by male agnatic descent and the rule of exogamy is strictly followed.

When a child is born, both parents remain in seclusion and are considered unclean for a period which varies from five days to a month. Some tribes insist on a longer period of seclusion when the child is a boy or for the first-born child whatever its sex. It is generally usual to give a child a name, some sort of a name (not necessarily or by any means the name which it is to bear through life), as soon as it is born, because a child without a name is particularly liable to be annexed by some wandering homeless spirit, of which there are plenty about. One tribe, the Marrings, does not give individual or particular names to the children, but has a rule by which the eldest son is called Moba, the second son Tewa and so on, girls as well as boys having names fixed for them by the priority of their birth. Nicknames from some personal peculiarity serve to distinguish them, but if at any time in later life the parents fancy a special name for a child, they may change the name if they can afford to provide a *mithun* and thirty jars of rice beer with free rations of salt and rice for the entertainment of the whole community. Sometimes the luck of the name proposed for a child is ascertained by consulting omens or by having regard to the parent's dreams.

Among all the tribes, it is customary for the husband to pay a price for his

bride to her parents. Sometimes the price is fixed by custom, but among the Kukis the rank and status of the bride's family are factors of considerable importance in fixing the lady's price. Should a couple run away together, some, but not many tribes, insist on turning them out of the village altogether, but in most cases they are only forbidden to enter the house of the girl's parents until the price has been paid together with something extra by way of fine.

Among the Kukis and Tangkhul Nagas is found what may be regarded as a survival from the times when women were systematically captured and made the wives of their captors. The bride is escorted to the bridegroom's village by a posse of young men of her clan or tribe. They meet and wrestle with the champions of the bridegroom's village. They believe that the longevity of the bride and bridegroom depends on the success of their friends in this friendly contest. There are other villages which observe this custom, but only when the bride comes from another village, never when she comes from a different group in the same village. In the case of the Kukis and the Kabui Nagas, when a man's wife dies, he has to pay her parents or their heirs a fixed sum which is called the price of her bones. This price is the same in amount as that originally given at the time of the marriage.

When the eldest of a family of brothers dies, leaving a widow, the Kukis make the younger brother marry her, but the elder brother may not take the widow of his younger brother.

All the hill tribes bury their dead, but in the case of a Raja or specially great and influential man, the Kukis have a rather unusual method of disposing of the body. They place the body in a hollowed trunk of a tree, plaster it carefully with mud, then carry it thrice round the village, and then, amid the wailings of the women, the noise of gongs, cymbals, horns and guns, deposit the box upon a *machan* or raised stage. To dispose of the products of decomposition, they insert a bamboo pipe leading from the box to the earth. After a month or so, they wrap the bones and skull in a new cloth and bury them. Provision has always to be made for the comfort of the deceased in the world hereafter. In earlier times slaves were put to death, nowadays fat animals only are slain. The clothes worn by the man in life, his weapons and implements, are buried with him. There is never the same degree of elaboration in the funeral ceremonies of women as in those of the men.

Special rules exist for the burial of special cases of death. Women who die in, or from the effects of childbirth, those who are slain by an enemy, or are killed by a wild beast, or who die far from their home, of cholera or some disease or who chance to fall from a tree and are killed, are regarded as peculiarly unfortunate in their deaths as the manner of their end betokens that they owe their fate to the hostility of some powerful and malignant spirit. The graves of the dead who die in the ways I have enumerated, are dug by a special class of people, sometimes only by the oldest men and women, and in some cases only by the near male relatives. Their graves, too, are nearly always apart and away from

the graves of the ordinary dead. Among the Tangkhuls, when a man is killed by a tiger, they kill a hunting dog and put a sharpened thorn and a strong spear in the grave, that the deceased may have a helper and weapons to defend himself if he should chance to meet with a spirit tiger on his way to heaven. In another case, for three nights after the burial of a man who has been killed by a tiger, his brother or some near male relative keeps watch and ward over the grave, lest the tiger come. A man, too, who has been killed in war is buried outside the village on the side opposite that where his enemies live.

If a woman dies in childbirth, and the child survives, it is or was customary among the Kabui Nagas and among the Kuki Lusei tribes to bury the living infant with the mother because the child is so obviously possessed by an evil spirit that its instant removal is necessary.

Among several of these tribes is found the custom of secluding for a period the inmates of a house where an animal has had young or has died. The period of seclusion varies greatly, as a rule it is most for a cow and least for a dog. Nearly all of them treat the cat with some respect, at least when a cat dies, it is wrapped up in a cloth and buried amid lamentations in a grave dug for it by the old women.

There are many interesting prohibitions, ordinances, and regulations among the hill-folk. There is one village, once the powerful head of a very large group, which believes itself to be descended from a lady of a porcine figure. It, and the villages subordinate to it, are therefore forbidden to eat of the pig. The Tangkhuls never eat goat in their own villages, because they think they would run the imminent risk of madness, and all sorts of illness. Indeed, more than once have I been told that they look on goats and their kids as very human. These are general prohibitions, but there are special rules for classes of persons, and for individual cases as well. The scale of diet allowed by custom to the *ghennabura* or religious head of the village is always extremely limited. The savoury dog, the tomato, the *murghi*, are forbidden to him. Unmarried girls are not allowed to eat dog, or in some cases the male of any kind of animal, while nobody knows the awful misfortunes that await the woman who when about to become a mother should eat bear. If a man is wealthy enough to feast his whole village, and erect a memorial stone, he is entitled to become subject to the same dietary disabilities as the *ghennabura*. He wears the same special clothes, and for the space of a year at least he must not use a drinking horn, but must take his daily drink from a bamboo cup. So is it that there, as here, there are penalties on greatness.

All sorts of things cause these periods of seclusion to occur. If the village is burnt, if they lose a member of the village in some remarkable way, if a woman dies in childbirth, or if there be an epidemic of sickness, the *ghennabura* orders the village gates to be shut. In fact, whenever an event occurs which interests or alarms the community as a whole, especially if it be explicable only as a manifestation of some supernatural influence, a period of seclusion is necessary. The village gates are shut and all strangers, who at the time happen to be inside

the village, are necessarily refused egress. If by inadvertence a man should violate any one of the many rules that must be observed on these occasions, he has to pay a fine, generally to provide a substantial repast for the village elders.

The *ghennabura* of a Naga village has a good deal of indirect authority, in virtue of his power to close the village and to declare a *ghenna*. There are of course annual festivals, when the stranger that is within the gates may not go forth, and the friend that is without must stay outside. These are festivals connected with the crops—before the rice is sown, when the blades appear, and as harvest thanksgiving. Drunkenness and unusual licence characterize these scenes. Among the Tangkhuls we find a curious custom. Before the crop is sown, and when it is reaped, the boys and girls have a tug-of-war with a tough rope of twisted creeper. Great jars of rice beer are set ready, and the severity of their ordinary morality is broken by a night of unbridled licence. The Kabuis, however, insist upon the strictest chastity on these occasions, most especially from the *ghennaburas*, who as among the other tribes have to sow first, to reap first, and always take the omens on behalf of the village. The Kabuis, I may explain, live in permanent villages, but subsist on *jhum* cultivation. There is a regular sequence which determines the fields and areas to be cultivated year by year, but in spite of this the omens are always carefully taken.

The two *ghennaburas* in clean clothes sit opposite one another holding twigs of cane in their hands. When the twigs begin to turn, they declare where and in what direction the cultivation is to be. There are many ways of taking omens. Some people break eggs, and from the resultant mess declare the prospects of the harvest. Others kill a fowl and watch the convulsive struggles of its feet in its death agony. If the right foot crosses over the left all will be well. I have seen omens taken by splitting a leaf, and by cutting chips off a piece of bamboo. Some Nagas foretell the success of an intended hunting expedition by their success in kicking small flat stones on to the top of a bigger stone. There is of course a profound belief in dreams as affording distinct unerring indications of the intentions of Providence.

In general they regard the future world as very similar to this. The Tangkhul who can afford it always kills a buffalo at his father's funeral because the God who keeps the gates of Heaven appears to have had enough of the amiable Tangkhul, and endeavours to keep the gates shut against them. The buffalo, of course, butts the gates open and lets the deceased and the expectant crowd of other souls in. That explains why they never or very rarely kill a pig at a funeral. It is a tiresome animal to manage, and is as likely as not to wander off with its master and owner to some very undesirable spot. They say that if a man has been brave and courageous in this life, he is welcomed in the after world by those who have gone before, but the coward is met with groans and jeers. The Tangkhuls are most precise in the localisation of their heaven. The way to it leads up the steep spurs and over the mighty crest of Sirohi-furar, a peak that dominates the scenery of their country.

They are particular to see that the cloth that is buried with the body intended as a present for the God of Heaven is not torn and is thus distinguished from the property of the deceased. If a Tangkhul's parents predecease him, when he dies, in his grave are put a flask of rice beer and a plate of rice to be given to his parents when he meets them.

The Eastern Angamis, however, regard heaven as a place with a number of compartments, one reserved for the worthy dead, another for those who fall on the field of battle. All the women who die in childbirth congregate together. The men whose ears are split or torn have a place set apart for them. I may add by way of explanation that nearly all the hill tribes regard a split or torn ear as a mark of special disfavour of some superior being.

There is a very common belief in the idea of re-incarnation, but they all strenuously maintain that no man can return to this world whose death shows him to have incurred the hostility of the powerful spirits.

~~Each tribe has its own method of inducing a regular and plentiful supply of~~

rain. The Tangkhuls cut a pig up into eleven portions, and the women make eleven rice cakes. The head of the village, with five men and five women, goes outside the village and offers these delicacies to the powers that be upon one of the memorial stones. Sometimes he has to gather eleven water-worn stones from a river-bed and wraps them up in river-weed.

Other tribes practise a ceremony of symbolical transference of water, as if they wished to explain to the powers in charge of the rain that they desire him to imitate exactly what they are doing. In some cases a pig, with its feet tied securely together, is drowned in a pool near the village. I have come across a fish hung up on the village gate as a rain-making rite, and was in one case told that it was usual to cut a fish, generally an eel, into small bits which were scattered on the irrigation cut, and on the river bank.

The Chirus catch a crab, tie a thread to a claw and put it in an earthen pot filled with water. The head of the village goes to the village gate, and keeps on lifting the crab out of the water, and lowering it into the pot again until tired.

In an interesting Eastern Angami village I was told that when they wanted rain the head of the village takes a brand burning from the fire, puts it on the grave of a man who has died of burns, quenches the brand with water, and prays for rain.

While the crops are on the ground, no hunting or fishing is allowed. They may not trade, they may not perform on their bamboo bugles, nor indulge in any pastime. Grass and trees must not be cut, nor may the women weave.

I hope at some future time to publish a full account, historical and ethnographical, of these people.

than anything else. He would venture to ask the author if he would preface his paper by a note of definition of the series of terms used to describe the social features of the people. The terms were, if he remembered rightly, tribe, clan, house, village, community, and what was wanted was some information as to the relationship of the social unit these terms connoted to each other. In particular, what was the relationship of the clan to the village? Was the village composed of several clans, and if so, would tribe mean a group of villages or a group of clans which would be spread over many villages? In short, how are locality and kinship related? It would, he ventured to add, be extremely useful if a prefatory note explaining these points could be given. One further query, which he would like to put, had relationship to terrace-cultivation—did it begin from the top of the hill or from the valley?

Mr. HODSON, in reply, said:—I use the word tribe to denote a number of people speaking closely allied dialects. The term is therefore partly linguistic, but it also connotes a certain amount of geographical propinquity as well as a high degree of general resemblance of dress, coiffure and customs. The clan is a term connoting in theory, community of descent; and in every Naga village there are several, sometimes many clans—constituent units—living each in its own area, between which there may be hostility as between villages hostility may exist. Very seldom does it occur that a clan, or *sagei* as it is called in Manipuri, in one village will consider itself related to, and therefore forbidden to marry with, a similarly named clan in another village.

These remarks do not apply to the Kukis, among whom the belief in a common descent is strong, so strong that most of them know their pedigree up to Thado, the ancestor of the Kukis, whose sons are the eponymous progenitors of the various clans. A Kuki village is generally composed of members of one clan. Sometimes we have mixed villages, but then we find some historical event in the past to explain its formation. A Mangvung village, a village with a Mangvung chief, will as a rule have only Mangvungs in it, people who pretend to be able to trace their descent from Mangvung, a son of Thado. The Kukis are migratory, from the force of circumstances, and possess a strong fissiparous instinct which is in no way checked by the *Fax Britannica*. The Nagas live in permanent villages, and the power of the head of the village depends mainly on his exercise of the sacerdotal functions, while among the Kukis, the house or head of the village is a secular authority whose interference in religious matters is limited to certain formal occasions.

A word or two about the terrace-cultivation. Such cultivation is only possible when the hills have an easy slope to the valley. The best and oldest fields are, I think, those half-way up the hill, and the worst and most recently formed fields are at the extreme top and bottom, which mark the margins of cultivation. The lower margin is capable of more extension than the upper, because it is, generally speaking, easier to irrigate fields at a lower than at a higher level. They cultivate the valleys in very much the same way with excellent results. I know irrigation channels which come at least three miles from some ravine or gorge before the water reaches the fields.

ON A COLLECTION OF PALÆOLITHIC IMPLEMENTS FROM  
SAVERNAKE.

BY EDGAR WILLETT, M.B.

[PRESENTED 26TH NOVEMBER, 1901. WITH PLATES XLII, XLIII.]

To begin with, I wish to disclaim all pretension to have discovered this find, the credit of which entirely belongs to Mr. J. B. Dixon of Pewsey. Early in September I heard that a large number of palæolithic implements had been found near Savernake and I saw several specimens. In consequence I went to Savernake and succeeded in securing some specimens, and it is at the suggestion of Professor Boyd Dawkins that I now exhibit them to the Anthropological Institute. Besides Mr. Dixon, Mr. Brooke of Marlborough, Dr. Hedley Visick of London, and Mr. H. S. Toms of the Brighton Museum had all secured specimens, which are now being exhibited.

The reasons why I have brought the subject before the Institute are two:—(1) the number and consequent importance of the find, and, (2) the fact that, so far as I have been able to ascertain, no palæolithic implements have been previously discovered anywhere in this locality nearer than Salisbury which is distant about twenty miles. The history of the find, so far as I can ascertain it, is as follows. Early in the present year Mr. Dixon found several good specimens in the heaps of stones by the side of the road leading from Burbage to Marlborough, rather nearer the former place, and about a mile from the Savernake Station. On inquiry, it was found that all these flints came from a particular gravel pit, situated near Knowle Farm in the north-east part of Savernake Park, and about half a mile from the Marlborough and Hungerford Road.

As to the locality; Knowle Farm and its gravel pit are situated on an outlying deposit of the River Drift, and are about three miles south of the Kennet, one of the largest tributaries of the Thames; it comes well within the catchment basin of the Thames, but hitherto, or so far as I have been able to discover, no palæoliths have been previously recorded from any locality in the Thames Valley farther west than Wallingford.<sup>1</sup> Bemerton and Milford Hill near Salisbury are of course well known localities, but they are in the valley of the Avon running south. Further, neither in Sir John Evans' book on *Stone Implements*, nor in the carefully prepared map at the British Museum, is the locality notified.

<sup>1</sup> Mr. A. M. Bell (p. 315) notes specimens from Oxford, and from Broadwell.—ED.



FLINT IMPLEMENTS FROM KNOWLE FARM QUARRY, SAERNAKE.





1-7. FLINTS FROM KNOWLE FARM QUARRY, SAVERNAKE ; SHOWING GLASSY SURFACE.  
8. FLINT IMPLEMENT FROM ABYDOS, EGYPT (IN PITT RIVERS MUSEUM) ;  
SHOWING SIMILAR SURFACE.



The pit, which I have seen, is situated on the side of a hill which looks towards the upper part of the Kennet Valley, the river being about three miles to the north. The contents of the pit consist of a rather fine sandy gravel of a greyish colour containing at first sight few stones large enough for use as road metal ; it is largely owing to this fact that so many worked stones have recently been saved. In consequence of its small size, all the gravel is sifted by hand twice before it is carted away for use on the roads ; the finest is used as sand for building, the next size is used for garden paths, and the largest and coarsest is used for the roads, for which purposes the larger stones are finally broken up.

The pit is only worked by two labourers, one of whom is a very intelligent man with a very good eye for stones, and few implements worth saving now escape him. Earlier in the year, however, before his attention had been called to the subject, all the large stones (*i.e.*, after the sifting), comprising literally many hundreds of very good specimens, were carted down to the road near Savernake, where so recently as last September and October, on the occasion of two visits, I was fortunate enough, as I have already said, to secure some very good specimens which are among those now shown.

My friend Dr. Hedley Visick, who has kindly lent me some of his specimens to make the series more complete, was staying at Marlborough during the summer, and visited the gravel pit on one or two occasions, taking part in and watching the digging ; he tells me that nearly every wheelbarrow-full of the gravel contained a flint worth keeping. A barrow contains five or six sieves full ; this will give some idea of the enormous quantity that exist in the pit. I am further told that the largest and best shaped implements (Type A 1) are usually found at a depth of 10 or 12 feet from the surface.

The series shown to the Institute has been made up of selected specimens from three sources ; (1) my own collection consists of about 60 well marked implements ; (2) Dr. Visick has considerably over 100 ; (3) there are over 250 belonging to the Brighton Museum and collected by its curator, Mr. H. S. Toms. I have thus been fortunate enough to have had over 400 from which to make a choice, and I am much indebted to Dr. Visick and the Corporation of Brighton for the loan of many interesting examples.

The specimens group themselves into several types.

A. *The oval* or flat ovals. This is much the most important group, and may be subdivided into three or four sub-groups.

1. *The long ovals*, measuring about 6 inches in the long diameter by 3 or  $3\frac{1}{2}$  inches across ; of these I can show two good specimens.
2. *The short ovals* with a less pointed end, measuring from  $2\frac{1}{2}$  to 3 inches in length by about 2 inches in width ; this is a fairly common type ; one small specimen of this shape is of chert and not flint.
3. *Short ovals with a point*. Of these there is a graduated series, 5 in number, the largest measuring 4 inches by 3, the smallest 2 by  $1\frac{1}{2}$  ; they are all very similar in shape, and are noticeable in that they all

have a sharp point at the smaller end. All the above are completely worked at both ends and all round, leaving very little of the original flint surface.

4. Next to these are three specimens very similar in general outline, but *only* worked at the edges; these three all come from Dr. Visick's collection.

B. *Hammer stones.* I do not use this name in the sense that these implements were used to hammer other stones exclusively, though some of them show signs at the thicker and less worked end that they have been used for this purpose. These are all of a much rougher character than type A; in fact, in looking at any single stone, doubts might well be entertained as to whether it had been worked or not, but it seems quite impossible that the shape of the eight or nine specimens shown can be accidentally so nearly alike; they are all more or less pointed at one end, while at the thicker and blunter end part of the natural surface of the flint still remains.

C. *Wedge-shaped stones.* This type follows closely on the former, the one almost merging into the other in some cases; some of these show very well the "shoe shape" described by others.

D. *Rymers or borers.* Of these again there are one or two varieties: (1) Sickle shaped, of which Dr. Visick lends me three almost identical in size and shape; (2) A remarkable type with a large unworked base; (3) A third variety with a double edge.

E. *Throwing stones.* This again is a very rough type, and it is only by comparing a number [ten were shown] that the conclusion is arrived at that their shape is not accidental. Many of them [E<sup>1</sup>] have one broad end and one narrow forming a kind of tail; they may be only scrapers.

On looking over the series several points will be noticed: (1) There is an absence of the usual triangular common palæolithic type, such, I mean, as is shown in most of the specimens from the lower part of the Thames Valley; (2) Most of the short ovals have a peculiar mottled appearance, while many of type B are black or nearly so, and very few show the usual reddish-brown staining by iron.

As to the surface, and amount of weathering. There are four specimens [labelled H 1, 2, 3, 4] which are worthy of comparison; they are all very similar in size and shape; one [1] is hardly worn at all, the edges and surface being fresh and sharp; one [2] is much worn by water; [3] is stained of an earthy-brown or rusty colour; [4] is apparently composed of chert not flint, and is nearly white. They all belong more or less to what I have called type A<sub>2</sub>. Another specimen [labelled G] is interesting as being almost neolithic in shape, while yet another approaches the type of implement found near the mouth of the Thames, except that its surfaces are not equal, one being much flatter than the other; this shape is, as I have said, rare; it is worked at the broader end, an unusual feature in the common palæolithic type. I should like to draw attention to five specimens [labelled L 1, 2, 3, 4, and 5] which do not readily come under any particular type; they are all very rough,

but to my mind are exceedingly interesting, partly from their rough and unfinished character and their possible connection with the so-called "Eoliths"; some of them are notched, which I believe is characteristic of many Eoliths, but they do not show the general rusty-iron discolouration over the worked edges and surfaces. It is quite possible that some members may be of opinion that these are not worked at all. I can also show a few typical *flakes* [labelled M].

The series as a whole certainly has a marked individuality of its own, but this is nothing unusual. At a recent visit to the Blackmore Museum, it was pointed out to me that the specimens found at Bemerton, a few miles to the west of Salisbury, have a character of their own, different from those found at Milford Hill, a few miles to the east, and a practised eye can tell pretty certainly in which of these two localities any particular implement was found.

In a general way the Savernake type approaches more nearly to those found at Bemerton than to the Milford Hill specimens.

Another point to which I should like to draw attention is the peculiar polished or vitreous appearance shown by some of the implements. This appearance is often if not generally confined to a portion of the flint only, and is also seen in many flints from the pit which show no signs whatever of man's handiwork. Till recently this peculiarity has been explained as having been caused by the fact that the part affected was exposed to the influence of *blown sand*, from the analogy, I believe, of certain specimens, with a somewhat similar appearance, which have undoubtedly been exposed to sand blown about in the desert in Egypt and elsewhere.

This "blown sand" theory has never seemed to me a good one from the fact that most of the flints which have this glossy appearance still retain their dark or other natural colour on their polished surface, whereas, if they had been exposed to the atmosphere long enough to have become polished by the sand, the surface would certainly have been oxidized and shown the usual appearances of exposure; this is not the case.

A much better and more satisfactory explanation seems to be that offered by Dr. Roberts, of Cambridge, to whom some specimens were shown. He suggests that this polish or gloss is due to a thin film of silica deposited by water. As the gravel pit at Savernake is still damp, this film may well have been deposited by the action of water running or percolating through the bed. Dr. Roberts, I am informed, had noticed a similar appearance in America, where the Geyser Springs coat the neighbouring rocks with silica. Another deduction which Dr. Roberts made is one bearing on the age of the Knowle Farm flints, and is this, that unless deposited by water at a very high temperature, when I suppose the solubility of the silica is increased, such a gloss as some of these flints show would take a very long time to appear, and it certainly occurs in varying degrees. There is no ground for supposing that the temperature of the water percolating the Savernake gravel pits was ever raised to any great extent, therefore the time required for the deposition of the silica must have been very great.

We have already seen that other flints from the pit, which certainly have not been worked at all by man, show this peculiarity, as well as the worked stones, so that it seems certain that the result is accidental and in no way connected with the manufacture of the implements. So far as I know, and I have inquired into the subject, no bones have been discovered in the pit.

#### DISCUSSION.

Mr. A. M. BELL said that he had listened to the account of this important find with great interest, and regretted that he had not visited the spot to examine the character of the deposit and lie of the country. It was not clear to him whether the bed in which the implements lay was a true river deposit, or a drift of some other character. These were the two classes of implementiferous beds, and it was important to distinguish them. At Wolvercote, near Oxford, for example, there is a distinct river bed, containing a number of finely worked large implements, which are but little altered by patination. Adjoining it there is an older drift, also containing implements, all of which are ochreous. This distinction in the age of palæolithic flints had first, the speaker believed, been pointed out by Mr. W. G. Smith; it was confirmed by all his own observations and was in his opinion a generalization of high value. Consequently on seeing a new group his first question was "To which age do they belong? Are they early or late?" From his examination he considered that they had before them relics of a drift, which was itself found in the later or river valley period, to which the majority of flints shown probably belonged. There were also among them a few rolled and weather-beaten examples which he considered belonged to another, and an earlier stage. There were none, however, of the very rolled and stained examples placed by Mr. Smith as the earliest period. Such examples were rare; at Oxford he had found none; at Limpsfield only one among hundreds of a later date.

To the statement of Mr. Willett (p. 310) that the nearest palæolithic find-spots were round Salisbury, he would add that a number of palæoliths have been recorded from Oxford and several adjoining localities; and also from Broadwell on the border of Gloucestershire, the latter being the most westerly station in the Thames Valley.

The speaker was much struck by the polish or glaze visible on many of the examples. He had never seen anything similar in implements from any locality, and he had seen collections from many places. He could not accept the explanation of Dr. Roberts, that it was due to a deposition of silica in solution. The condition which Dr. Roberts asked for as the cause of the phenomenon, rain-water perpetually running through sand, was common to every implementiferous deposit that he had ever seen. The result was peculiar and unique; he therefore could not attribute it to a cause which was at work in all cases. Nor could he think that the analogy of the Geyser Springs, referred to by Dr. Roberts, was a fortunate one. Silica, as is well known, is soluble in heated water containing an alkali. Both of these conditions are present in the water of the Geyser Springs, but, granting the alkali, for which there is no obvious cause, the presence of heated water in a surface deposit on the Wiltshire downs is incomprehensible.

The glaze might be natural or artificial. As it was usually, but not always partial, and not always on the same part of the tool, it seemed to him due to a natural cause. He knew none more likely than the cause rejected by the author the action of sand before the wind; he had seen a very high polish produced in this way on neolithic flints in the sand-heaths of Norfolk and also on the Aberdeenshire coast. At the same time he could not say that either these flints, or the well-known *drei-kanters*, or such flints as he had seen polished by the sand-blast of the Egyptian desert, had so high a polish as the examples before him. In two cases only had he seen a similar polish produced on stone by natural causes; the first was by glacial action, the second was by animals brushing against the side of a limestone cave. Neither of these causes were in this case applicable; ice would have polished away slight waves of fracture which were always retained—and he would gladly hear other attempts at solution of a very peculiar phenomenon.

Mr. STOPES said that it was clear to him that the polished surface was due to the friction of passing worms.

#### NOTE A.

After a subsequent visit to Savernake Mr. A. M. Bell writes further as follows:—"It is a most interesting find. The pit is in a hill-slope, but close to the great central watershed of south-west England; *i.e.*, in an *unwasted area*. Hence something *old* may be expected. In the pit are found (1) unrolled, fresh stones; (2) rolled and worn stones; (3) thickly patinated stones. The unrolled lie at the base; that is, there is probably a *floor* of palæolithic workmen. The rolled and patinated stones come from the central watershed, and may be much older than the first.

"The 'sand-blown' theory will not do for the 'glazing'; it is, I think, a *deposit* of silica."

#### NOTE B.

The long narrow implement on Plate XLIII is in the Pitt Rivers Museum, and is kindly lent for comparison by Mr. Balfour. It was found by Mr. J. Garstang at El Mehesna near Abydos in Egypt (reference number M. 2. S.), and is of pre-dynastic date. In Mr. Balfour's opinion the "glaze," which resembles very closely that on the Savernake stones, is due to the rubbing of gritty soil upon the implement which seems to have been used as a hoe.

#### NOTE C.

Mr. H. Wood-Hill, of St. Bartholomew's Hospital, has submitted to the Institute a memorandum on a chemical explanation of the "glazing" of the Savernake flints, which it has not been found possible to include in this volume of the *Journal*.



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